The Builder.

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"The Dictionary of Architecture."

THE completion of the "Dictionary of Architecture" is an event which certainly calls for special notice in our columns. It has been in progress for forty years, during the whole of which period the original plan and character of the work have been rigidly adhered to, and the last volume* issued is conducted on the same lines as the first. It is certainly rare to find a work of this kind, which has been spread over so many years, carried out so completely on a plan definitely fixed from the date of its first publication.

To the concluding volume a preface is prefixed giving a short account of the manner in which the work was first started, and it may be of interest to some of the younger generation which has sprung up since the commencement of the work, to recapitulate briefly its history. The Dictionary, of late years especially, has been practically the work of Mr. Wyatt Papworth, and it was to his action that we are indebted for the first initiation of the idea. In 1848 he issued a circular letter setting forth the plan of a proposed "Society for the Promotion of Architectural Information, intended for the Revival and Restoration, Investigation, and Publication of Knowledge in Architecture, and the Arts connected therewith;" and a meeting was held at 10, Carolinestreet, Bedford-square, on the 4th of May of the same year. A committee, comprising most of the leading architects of the day, was appointed, and the name of the "Architectural Publication Society" was adopted. The first publication of the Society consisted of detached "Essays and Illustrations," but the real plan of the Dictionary arose out of the preparation by Mr. Wyatt Papworth of a "List of Terms" proposed for an Encyclopædia of Architecture. This List of Terms afforded a practical suggestion for the framework of such an encyclopædia, and the committee as existing in 1852 were of opinion that the carrying out of an encyclopædia on the lines thus suggested would be a work of so much usefulness that it ought to be commenced forthwith. The Committee in question numbered thirty people, of whom only six have survived to see the completion of the proposed labour. The names are given in the preface; the six survivors referred to are, we presume, Mr. Ewan Christian, Mr. H. B. Garling, Professor Kerr, Professor Hayter Lewis, Mr. Wyatt Papworth, and Mr. W. W. Pocock. Among the other names were those of Sir Charles Barry, Professor Cockerell, Professor Donaldson, Mr. George Godwin, Mr. I'Anson, Mr. John Woody Papworth, and Mr. (afterwards Sir) William Tite. The opinion of this committee was that it would be impolitic to enter upon a publication of a large encyclopædia to be issued in successive parts, extending over a long series of years, "creating the apprehensions and exhausting the patience of subscribers," and that therefore the project should be carried out as a dictionary of explanation and reference, with incidental woodcut illustrations, "so arranged as to be completed in about three years at the present terms of subscription." What actually happened was that the Dictionary was continued on the proposed basis as a work of reference and explanation only, but that its completion has occupied forty-four years instead of the three years calculated on, and certainly with that concomitant result of "creating the apprehensions and exhausting the patience of subscribers," which was supposed to constitute the special obstacle to the bringing out of an encyclopædia on a larger scale. In fact to many, especially of the younger generation, the "Dictionary of Architecture" became a kind of myth, heard of vaguely now and then, but the origin of which was lost in the mists of pre-historic times.

The causes of this extraordinary delay seem to have been, in the first place, the care taken in collecting correct information and in revision of the matter when in type; the system adopted of extreme condensation and repeated revision caused a disproportionate amount of labour over every page, and often the sacrifice of a large amount of collected material. This was a delay of a creditable nature, consequent on the determination to have all the information as correct as possible. But the main cause of the interminable dragging out of the Dictionary has been want of funds, arising partly out of the fact that the architectural profession did not support and subscribe to the work to by any means the extent which had been expected. The list of subscribers is certainly not a long one for such a work. We presume that many architects considered the publication a dry one, that they did not care about accurate information so much as about artistic illustrations, and accordingly took no interest in the publication. In this they certainly made a mistake, which has delayed and crippled the production of a work for standard reference which in its own way is of the highest value. It is no doubt due to this deficiency of funds that the Dictionary has during many years, we believe, been left practically to the labours of Mr. Papworth, who in 1858 was relieved of the duties of hon. secretary which were undertaken by Mr. Cates, in order that he might devote his undivided attention to the actual work of the Dictionary. This we presume we may take as an admission that practically the work is the result of Mr. Papworth's study and researches, though we believe he has consulted and received assistance from others to a certain extent.

It is hardly possible that any one man should be able to treat all subjects for a work of this kind with the same degree of success, and if the work had been an encyclopædia of the extended type such a *tour de force* would be manifestly impossible. As the object of the Dictionary, however, is confined to the explanation of terms and the collection of information as to the further sources of study in regard to each subject, this is a matter of study and industry rather than universal genius, and the numerous papers by Mr. Papworth which have been published from time to time in our columns and in the *Transactions* and *Journal of Proceedings* of the Institute of Architects are sufficient to show that Mr. Papworth possesses in an unusual degree that kind of passion for research, and carefulness in the looking up and recording of facts, which form peculiar

* "The Dictionary of Architecture," issued by the Architectural Publication Society. With illustrations. Vol. viii. 1892.

qualifications for dictionary work. It might be expected that certain subjects which lie specially within Mr. Papworth's favourite line of studies would be better or more fully treated than others; but on the whole a very impartial attention seems to have been given to all classes of subjects. In the preceding volume of the Dictionary we noted some curious errors, partly of a literary kind, but these seem to have been rather accidental than essential characteristics. What they did show is that the practical extinction of the large committee of revision which formerly sat upon and sifted everything before finally passing it for press was a great loss to the Dictionary, and that in a multitude of councillors there is safety, at any rate comparatively, from minor errors and inaccuracies.

Taking it all in all, however, the "Dictionary of Architecture" is a very remarkable monument of patience, care and industry, and when Mr. Cates says, in his leaflet accompanying the concluding volume, that "as a dictionary of explanation and reference the work stands alone," he is saying no more than may be legitimately claimed for it. We have remarkable illustrated dictionaries of architecture, in which the articles take the form of extended literary essays on each of the subjects handled; but the "Dictionary of Architecture" is really, so far as we know, the only work on an extended scale the object of which is simply to convey information as to facts, put in the most concise form, and accompanied by a reference to the titles of works from which detailed information can be obtained. This last is one of the most useful features in the Dictionary. Under each subject we find a list of books, periodicals (with dates), or other publications from which the subject can be studied. It must be admitted that these lists too often omit the more recent publications, partly because of the slow rate of progress of the Dictionary, partly we think from an element of the *laudator temporis acti* on the part of the author or editor, whichever we are to call him. We have noticed on another occasion Mr. Papworth's tendency to go a good many years back for his references and authorities, and ignore recent books and recent numbers of periodicals. Thus under the word "Theatre," we find reference to "Donaldson" on the form of the Greek theatre, but none to "Dörpfeld" or "Gardner." It may of course be replied that as "Theatre" comes in the earlier pages of the concluding volume of the Dictionary, the article must have been written some years ago, before the recent controvery had made itself felt. We fear that in a general way the Dictionary will be found in this respect always a few years out of date, and if ever a second edition of it should be issued, it will of course have to be brought up to date in this respect. However, all the numerous references to early and standard works and ancient publications retain their full value, and if the Dictionary had been produced as quickly as the original promoters intended it is obvious that it would now be much more out of date than it actually is.

The scope of the Dictionary includes every term that refers to anything connected with or relating to architecture, including of course eminent architects, and also eminent towns or places of architectural interest. Thus we find in two or three pages such a variety of subjects as "Tite," "Trieste," "Triforium," "Triglyph," "Trilithon," "Trimming joist," a set of words which includes a tolerably wide category of subjects. The Dictionary also serves as a repository and preservative of some ancient words which are nearly forgotten, and may in that way convey some unexpected information. How many of our readers ever heard of "Twichyngropes," or can tell of what place "Tysdrus" was the ancient name? As far as we have observed, no opinions peculiar to the Dictionary are advanced upon any of the subjects; it is confined to the statement of ascertained facts, or of opinions only as matters of history, as held at a certain time or place, or by this or that eminent writer. This is really a wholesome reaction against the modern tendency to issue, as Dictionaries, what are really a string of independent essays embodying individual opinions.

In short the "Dictionary of Architecture" is a Dictionary pure and simple, a work to give information. It will be found deficient in regard to new facts or new opinions of the last few years, but it is a mine of information for all time preceding that, and information which we believe will be found to be exceptionally accurate and reliable. The work is beautifully printed on a large two-columned folio page, and is in every sense a monumental production, and one on the completion of which we may sincerely congratulate Mr. Papworth and his supporters. The cost of such a work of course puts it entirely out of reach of popular circulation; there are now in fact, we are informed, only twenty copies purchasable beyond those which are due in advance to subscribers,* and the Committee are under a distinct pledge not at any time to allow the issue of copies at less than the original subscription price, so that the market value of the book will always be retained. We hope, however, that the available public sale will not always be restricted to the aforesaid twenty copies, and that there may be a prospect of a second edition on the present sumptuous scale, but with such revision as will bring it as closely up to date as possible.

THE RIGHT OF QUANTITY SURVEYORS TO RECEIVE FEES.

IT may be doubted if any point of practical importance has given rise to more legal disputes than that in regard to the payment of quantity surveyors for work done to enable builders to tender for work which has to be performed. In the well-known case of Evans *v.* Carte, which occurred in 1882, Lord Coleridge remarked that "it is quite monstrous that the employer should pay for the quantities,—that is, that he should pay for what it is the duty of the architect to do." In other words, he considered that the employment of a quantity surveyor was altogether improper. We have, however, now for our guidance a case definitely and clearly decisive on this point, differing materially from the *obiter dictum* of Lord Coleridge. We refer to North *v.* Bassett (Law Reports, 1, Q.B., 1892, p. 333). In the course of his judgment, Mr. Justice Mathew observed, "What is the usage which, upon these facts, it is sought to set up? It is one which I should have thought to be notorious—a usage that the fees of the quantity surveyor are paid by the builder whose tender has been accepted by the building owner. *This is a sensible and convenient usage;* it brings all the people together,—the builder, the building-owner, and the quantity surveyor,—and they all assent to it." Mr. Justice Smith says more briefly, "This kind of tripartite agreement is a sensible and convenient one." Here are two of the ablest and most shrewd judges on the bench, each noted for his commercial knowledge and common-sense, who approve of this usage.

The action was brought by a quantity surveyor against a builder in respect of fees. It was a case of the most ordinary character, but it is of first-rate professional importance, because the Divisional Court not only thus emphatically approved of this notorious custom, but also sustained it as being good law. Therefore, until a Court of Appeal upsets the case, it must be regarded as making the custom valid, and, in a sense, proving the existence of it. But, unfortunately, there exist some discordant elements. In 1888, the case of Priestley *v.* Stone came before the Court of Appeal. This was an action by builders against a quantity surveyor for damages caused by his negligence in preparing an inaccurate bill of quantities. The Court of Appeal held that such an action could not be brought, because there was no privity of contract between the two parties. Lord Justice Lindley said:—"There was no privity of contract between the builders and the quantity surveyor. The custom relied on as to privity between them was not proved, and, even if proved, the custom would probably be held to be unreasonable and bad. . . . . The real truth was, that the defendant was employed by the architect, and not by the builders." But if there is no privity, either by contract or custom, as seems to be the opinion of the Court of Appeal, how can there be a right to recover for fees against the builder? No doubt, in North *v.* Bassett, Mr. Justice Mathew remarked that "I am convinced that the Court of Appeal in Priestley *v.* Stone never meant to say that this usage was a bad one," and Mr. Justice Smith made a remark to the same effect. But this is rather a cavalier way of treating the judgment of the higher Court, or rather the expression contained in it.

It is possible that the decision of the Court of Appeal might well be supported so far as the particular case before it was concerned, because there was no proof of negligence on the part of the quantity surveyor. But the observations in regard to the relationship of the quantity surveyor and the builder are of importance, and cannot be lost sight of, for these seem to go farther than the case before the Court of Appeal, and in a sense to indicate a principle. Therefore there is still a skeleton in the cupboard; behind the clear and definite case of North *v.* Bassett there is the ominous shadow of Priestley *v.* Stone. For the present the Courts must act upon the decision of Mr. Justice Mathew and Mr. Justice Smith, but we shall be surprised if, some day, when the amount in dispute is large, the question is not taken to the Court of Appeal. Until, however, this event occurs, the decision, North *v.* Bassett, which is in accord with a long-continued practice, must be regarded as a binding decision. But it should be borne in mind that North *v.* Bassett was a case in which the work was done by the builder. We have yet cases such as our old friend Moon *v.* Guardians of the Witney Union, decided so long ago as 1837, where the contract has gone off. In that case it is by no means so clear that the building owner can be made liable for the fees of the quantity surveyor, though, perhaps, the balance is in favour of the contention, because the practice of employing a quantity surveyor is becoming more and more known to the general public, and is not regarded by them as so unreasonable as by the Lord Chief Justice of England.

NOTES.

WE have received the Chief Engineer's annual report of the National Boiler and General Insurance Co., Limited. It is a readable and instructive pamphlet. Of course, practically every boiler user has his boilers insured, for of all the assurances that can be effected by the payment of a small annual premium, this, to a manufacturer, is as satisfactory as any. If there are any power users whose boilers are uninsured, then let it be a first and instant duty to remedy this state of things. This is very safe advice to give, but if further impressing is needed, let this report be perused. The information it contains is applied chiefly

* Mr. Cates gives a list of the principal Institutions and Libraries in which the Dictionary is to be found, which it may be convenient to reprint here for the benefit of those who may wish to consult it. Mr. Cates's list is as follows—"Among learned bodies and Public Institutions may be named,—the Athenæum Club, the London Institution, the Royal Academy, the Inner Temple, the Middle Temple, the Surveyors' Institution, the House of Commons, the Commissioners of H.M. Works, the Lords of the Admiralty, the Carpenters' Company, and the Institute of France, Paris. The work will be found also in the City of London Library, Guildhall; the National Art Library, South Kensington; the Patent Office Library; the Libraries of the University of Glasgow, the University of St. Andrew's, the Queen's Colleges at Belfast, Cork, and Galway; King's College and University College, London; the Thomason College, Roorkee, Bengal; the Massachusetts Institute of Technology, Boston, U.S.A.; in the Signet Library, Edinburgh; also in the Free Public Libraries of Birmingham, Glasgow, Leeds, Liverpool, Manchester, and Sheffield; of Boston, U.S.A.; and of Melbourne, Victoria."

to recommending the purposes of the company, of course, but in doing this the Engineer has gone out of his way to make his report comprehensive, and much interesting and valuable information of a technical character is included. It is possible that many boiler users do not know that in addition to the expense of replacing the boiler and recompensing the injured, when an explosion occurs, there is a considerable likelihood of a Board of Trade inquiry under the "Boiler Explosions Act." The result of this may be a heavy penalty imposed, if ordinary care and thorough and regular inspections by qualified men have not been resorted to. The insurance of a boiler removes this risk, for the necessity of periodical inspection is then remembered by someone else besides the user, and an insurance inspector is certain to be a qualified man. The causes of explosions and fractures may be summed up as follows:—Defective conditions, external corrosion, internal corrosion, general deterioration (which must occur to every boiler), internal grooving, mistake, negligence, overpressure, deficiency of water, deposit, malconstruction, weakness of tubes, safety-valves imperfect or improperly used or fixed, with a residue of causes difficult to ascertain. This is a formidable list, but does not embrace all, and the "causes difficult to ascertain" represent a fair total by themselves.

AN extract from a report of the Highways, Sewers, and Public Works Committee of the St. Pancras district which we have received, contains some observations about materials for roads, a matter on which we have still to seek the most perfect method. The wood paving of Euston-road (by the Henson Street Wood Paving Company) has been taken up after lasting eleven years, the longest of any mode of paving with soft wood, and the chairman of the committee (Mr. Jos. Thornley) asks the Works department "in consequence of the unsatisfactory experiences we have had with yellow deal," to reconsider the decision to pave Tottenham-court-road with that material, and to use an Australian hard wood. As a middle course, pitch pine is to be used. A quotation from a report on wood pavements in Australia, however, shows that even with the Australian hard woods, it is strongly recommended that the pavement of streets in Sydney with wood blocks be entirely discontinued. The principal reason given is that "the analysis shows that the blocks in actual use here have absorbed an amount of organic filth which is large in comparison with the short time during which they have been laid, and which is distributed throughout the blocks in such a manner as shows that their complete impregnation is only a matter of time." Again the report continues:—"So far as the careful researches of your Board go, the porous, absorbent, and destructible nature of wood must, in their opinion, be declared to be irremediable by any process at present known; nor, were any such process discovered, would it be effectual unless it were supplemented by another which should prevent fraying of the fibre." This opinion from Sydney, where they can command a far superior style of wood for pavement to what we can economically use here, is certainly significant. Our own opinion has been for some time back that wood pavement will have to be abandoned, before long, on sanitary grounds; but what is to satisfactorily take its place we do not yet see. Asphalt is sanitary and quiet, but the cruelty to horses which it involves is a consideration which we have no right to pass over.

IT appears that the Improvement Sub-Committee of the Manchester City Council have, whether by intent or only by a happy coincidence, struck an effective side blow at the proposed architectural defacement of the Manchester Exchange building by walling up the portico. The Sub-Committee have recommended that a new building line should be adopted from the Conservative Club along Cross-street to Market-street. The effect of this, we understand, will be to constitute the Exchange portico, with the approaches thereto projecting beyond the present solid portion of the Exchange building, an intrusion on the street, and with that status it will be there on sufferance. This will put the Corporation in a position to veto any conversion of present air-space into solid building by the filling up of the spaces between the octastyle portico as proposed. The line of Cross-street can never be made quite direct,—a small mercy for which the number who are thankful will probably increase, as very straight streets are very dreary. The recommendation of the Sub-Committee has to be sanctioned by the General Committee and the Council, but it is expected that this will be done. It is certainly a new and ingenious strategical way of defeating a proposed architectural blunder.

IT appears that there is to be some question as to repairs to Linlithgow Palace, under the department of Scottish Parks and Pleasure grounds. In view of this, as we learn from a recent number of the *Glasgow Herald*, the Edinburgh Architectural Association have circulated among Scottish Members of Parliament their own report of the condition of the palace and the repairs necessary to it. Their circular is to some extent an anti-restoration circular, as they take special care to point out all the parts of the building which are in good condition and have no need of repair, though we think it contemplates or suggests rather too much nevertheless. For the restoration of the fountain in the centre of the quadrangle, "the most unique thing of its kind in great Britain" (as a matter of grammar we may observe that a thing cannot be "the most unique"—it is "unique" or it is not) "there is ample material for guidance; and the names of the figures that filled the few vacant niches on the exterior of the building are known." We fear this points to a sham restoration of fountain and figures, which will have no interest, and only introduce a false element into the building. In their recommendations as to the necessary repairs the Association are on safer ground, and we entirely agree with them that the building should be roofed without delay.

THE case of Pendarves *v.* Monro, reported in the current number of the Law Reports, should be noted, though it does not lay down a new legal principle, but simply emphasises and exemplifies one which has been for some time in existence. Article 41 of Roscoe's "Digest of the Law of Light" states that "when a right is claimed in respect of windows in a new building coincident, wholly or in part, with windows in an old building, the owner thereof must show clearly that the new windows are coincident with and contain the area of those which have acquired the right to light." This principle was enunciated by, among other cases, that of Fowler *v.* Walker, and it is this principle which Pendarves *v.* Monro emphasises. The identity of the old and new windows was not proved. "By reason of the omission," said Mr. Justice North in his judgment, "to keep any plan, there is no evidence which satisfies me that any part of an old window can be identified with any part of an existing window." In the work from which an extract has been given, the author states, in the note to article 41, that when a building is to be pulled down, a plan showing the position of ancient lights should be made and kept with the title deeds. The place in regard to which the dispute in this last case arose was in Sardinia-place, Lincoln's-Inn-fields, and the old houses were pulled down in 1872; therefore, being buildings in the centre of London, it was eminently desirable that plans should have been kept. The occupier of the building from 1869 to 1872 made an affidavit giving particulars of the old windows, and stating that he believed that the new windows "cover in whole or part the ancient lights." But, as we have seen, this was not enough,—the evidence was too vague. The practical result, therefore, is that without a plan it is almost impossible to establish a right to light in respect of windows in a new building which have not themselves acquired a right, but are alleged to have such a right in respect of old windows in a demolished building, with which they are alleged to be identical.

IT is generally conceded that the electric light is the best of all, at least for the theatre. But it is no use having a good thing without the intelligence to use it aright. Naked lights, whether electric or otherwise, are unpleasant unless very far removed from the eye, nor is it desirable that the *auditorium* should be more brilliantly lighted than the stage. The neglect of such obvious considerations at Covent Garden provoked some correspondence in the *Morning Post* last week, happily concluded on Saturday by a letter from Sir Augustus Harris promising to "encase the offending lamps in soft salmon surah silk"—what an ear Sir Augustus has for alliteration!—and that "on German opera nights the lights will be turned out." But why only on German opera nights? Is Italian opera unworthy to be seen as well as heard? or are we to understand that the "music of the future" is a matter chiefly of *chiaroscuro*?

OUR New York contemporary, *Engineering News*, illustrates a monolithic concrete floor recently introduced by Mr. C. F. Terney, of 59, East 106th-street, New York. Concrete floors have been used in some large buildings in Philadelphia, in which the spaces between the beams have been filled in solid: but in the newer arrangement tubular spaces of an oval section, the longer axis being horizontal, are run parallel with the beams. Working in this way, it has been found that great strength is obtained with a comparatively small amount of material. The method of construction is described as follows:—"A temporary floor is suspended from the beams to support the concrete while setting, and a very rich concrete is laid upon it to a depth of several inches. The tubes are made of rich concrete, and vary in size according to the span of the beams, and their spacing and the total depth of the floor. The tubes are made in short lengths and in halves, and when laying them the joints are well cemented, and the outside is flushed all over with grout. The upper and lower halves of the tubes break joint with each other. The space at the sides of and above the tubes is filled with concrete of a cheaper grade than that used for the lower layer and the tubes." The tubes are placed near the upper surface of the floor. This is done so that there may be larger transverse area in the extension than in the compression plane, the compressive strength of concrete being greater than its tensile strength; the ratio assumed by the designer of the floor being 8 to 1. The inside dimensions of the tubes vary from 12½ in. and 9 in. for floors of 20 ft. to 30 ft. span, with 8 in. beams, spaced 5 ft. 9 in. apart, down to 7 in. and 4½ in. for floors of 14 ft. to 18 ft. span, with 5 in. beams, spaced 3 ft. 6 in. apart. The safe loads per square foot of floor are said to vary through the wide range of from 130 lbs. to 570 lbs. in some sample floors tested. The inventor computes the strength of the construction to be as follows:—In a floor of 20 ft. span, with 7 in. I-beams of 15½ lbs. per foot, and spaced 4 ft. apart, a load of 200 lbs. per square foot can be sustained with a factor of safety of 4. The total depth of the concrete would be 9½ in., and four tubes would be used, with cross sections 5½ in. by 8¼ in. The total cost of such a floor is about 56 cents (say 2s. 4d.) per square foot, which is said to afford a saving of 25 per cent. in price over ordinary construction.

THE *Times* correspondent, writing from Paris on the 19th instant, announces that in making a cutting at Andresy for a new railway line between Argenteuil and Mantes, an extensive Merovingian cemetery has been uncovered, dating from the sixth

century. Andresy (or, rather, Andresis), lying fourteen miles distant north-west from Paris, stands upon the right bank of the Seine, near to Conflans, and opposite to the forest of St. Germain (which the Seine surrounds upon three sides), and just below the confluence of the Oise with the Seine. The Frankish dominion established in Gaul by Clodion and his son-in-law Merovæus, in the former half of the fifth century, included Artois, and extended from the Rhine to the Somme. On the death, in 511, of Clovis, grandson to Merovæus, whose conquests advanced further to the west and south, and comprised Burgundy and Aquitaine, the kingdom was divided amongst his four sons. Of these, Childebert I. reigned at Paris, Clothaire I. at Soissons, and Clodomir in Orleans. From 558 to 561 Clothaire I. reigned, alone, at Paris; and so did Childebert II. during the interval 575—584. After his victory over the Alemanni at Tolbiac, Clovis, influenced by his wife, Clothilda, embraced the Christian faith, together with 3,000 of his warlike subjects. "The new Constantine"—in the words of Gibbon—was baptised by Bishop Remigius in the Cathedral of Rheims. The first interment of a king of the Merovingian dynasty in St. Denis was that of Dagobert the Great, in 638.

THE Langdon Abbey estate, in East Kent, extending over about 654 acres, is to be offered for sale. The manor formerly belonged to the ancient barony of Averenches (Folkestone), of which it was held by service of one knight's fee and ward to Dover Castle, by the family of Auberville, of Westenhanger. William de Auberville so held it, *temp.* Richard I. He founded here, in 1192, an abbey—since a priory—for some white Premonstratensian canons whom he brought from Leiston, in Suffolk, and dedicated it to the Virgin and St. Thomas-the-Martyr. At the Suppression, having a yearly gross income of 56*l.* 6s. 9d., it was surrendered voluntarily by Abbot William Sayer and his band of ten monks. A list of the abbots, with a print of their seal, will be found in Hasted's "Kent," 1799, folio. King Henry VIII. gave the manor of West Langdon, with the priory site, to Archbishop Cranmer; it was subsequently possessed by, in turn, the families of Thornhill, who re-instated the house, called "Abbey Farm," Master, Furnese, and Coke. St. Mary's Church, described by Hasted as being in ruins, was rebuilt in 1869. In the vicinity are Shebbertswell (Shepherd's-well), or Sibertswould, so named after a Saxon owner, Sibert, where, according to vol. i. of C. Greenwood's "Epitome of County History," 1838, 4to, the manor-house was built by Inigo Jones; and Waldershare, its mansion attributed to Jones also. But if, as it is said, Waldershare was built, *circa* 1705, for Sir Henry Furnese, it could not have been erected in Jones's lifetime, for that architect died in 1652.

ANOTHER selection of Mdme. Ronner's paintings of cats is on view, at the Goupil Gallery. The painting of cats is not the highest mission of art; if it were, Mdme. Ronner would be the greatest artist of the day, since her painting, as far as cats go, is simply perfection; the cats seem to be alive, and the various expressions of the kittens, so unconsciously humorous and so difficult to catch, are charming. A life's close study could alone have enabled the artist thus to understand and reproduce the very life and feeling, one may say, of the cat tribe. Though the cats are the essential portion of the pictures and the chief object of the artist's studies, it must be observed also that all the accessories to the larger pictures are painted with great force; in "Un Bout de Toilette," "Les Antiquaires," "Amateurs of Jewels," the old casket, the tapestry, the jewels, and laces are beautifully finished.

MANCHESTER SOCIETY OF ARCHITECTS.—The first of the summer series of sketching visits was paid on the 14th inst. to Astbury Church and Moreton Hall, Cheshire, under the leadership of Mr. A. H. Davies-Colley, A.R.I.B.A.

ARCHITECTURE AT THE ROYAL ACADEMY.—V.

1,712; "Sheffield Municipal Buildings: Council Chamber;" Mr. E. W. Mountford.—Hung rather high; it shows a room with a flat ceiling divided into compartments with pendants at the crossing lines of the leading mouldings, the compartments filled in with tracery. The room is wainscotted to the foot of the large traceried windows, which come down lower at the end than at the sides. As far as one can judge from the drawing, the proportions look rather low for the area of the room. A richly-decorated cove connects the ceiling with the wall.

1,714; "Interior, New Church, Miles Platting, Manchester;" Mr. Leonard Stokes. A very fine pen drawing of a very original design. The aisles are for passage only, the church being practically one-aisled, the lofty piers are apparently of hexagon plan with the point towards the nave; they support ponderous plain-soffited wall arches springing from a lintel between pier and outer wall; the piers have thin cap-mouldings on each side, between which the vaulting ribs spring from the surface of the pier; for base-mould there is only a set-off. The piers are connected with the wall halfway up by cross lintels worked into a kind of coffer shape and with bas-reliefs in panels on the sides; if these are a bond to the construction, as may be supposed, their form looks rather out of place in that position, they have no constructive expression. The sculpture, we understand, represents the Stations of the Cross. The roof is a simple quadripartite vault. Statues decorate the piers on the side towards the nave, and the chancel arch has a broad splay decorated with sculpture in niches. The whole is a very remarkable and novel architectural conception.

1,715; "Somerville Memorial Free Church, Keppoch-hill, Glasgow;" Mr. W. G. Rowan. A slight but well-tinted sepia drawing of a picturesque group of buildings, the plain tower with angle buttresses and a lantern stage, with short slated spire over, forming the centre of the group. What we take to be schools or a meeting-hall at the side, a plain low building, groups well with the rest, and sets off by contrast the richer treatment of the church gable at the other side of the tower. A plan would have been an improvement; there is plenty of room on the paper for it.

1,716; Mr. Webb's South Kensington design, we have already referred to; 1,719, "Mausoleum Windows, Hertingfordbury Church," by Mr. Jas. Fisher, shows a two-light window of quiet and unobtrusive colour, with a figure of an angel in each compartment, one of them St. Michael weighing souls, an antique superstition which is surely out of place in a modern window; the saint has rather too much the appearance of being in "Court dress." The drawing of the brackets on which the principal figures stand, as if they *projected* in perspective, is a mistake in stained-glass design.

1,721; "Dining-room and Library;" Messrs. Ernest George & Peto. The dining-room merely shows a bit of the woodwork and cornice; the library is a very good bit of perspective sketch lightly tinted in brown with a panelled ceiling in straight-lined geometric pattern with pendants, the walls are mostly plain, and are cross-lined as if divided into large squares, but what this represents it is not easy to see. The white marble chimney-piece has a wooden overmantel with long upright panels partially carved, and an entablature above. Over the two doors the woodwork is carried up to the cornice and decorated with a moulded balustrade, which seems a very unmeaning ornament in such a position. By the same architects is

No. 1,722; "Country House, Dorset;" an imitation Old English house of plain character with mullioned windows and a doorway flanked with columns, and with little pyramids on the attic, which are also repeated at the feet of the principal gables. The garden front is diversified by two bay windows, and what we take to be the servants' quarters front (there is no plan) is treated picturesquely, with an arcade under the end gables, and a little open balcony and arch above the door. If people wish to make believe to have an old house of the seventeenth century nothing could be better for the purpose.

1,723; "Portal, Sta. Maria Maggiore, Bergamo;" Mr. T. MacLaren. A very clear sunny little water-colour drawing.

1,724; "New Wing to St. Agnes School, East Grinstead;" Mr. Arthur E. Street. A plain stone Gothic building with a great deal of solid wall-surface and high-pitched red-tiled roofs; a point in the design is made by carrying a broad band of similar red tiling along the wall half way up the building, confined by string-courses. The building is solidly built, pleasing and unpretentious, and shown in a very good water-colour drawing, but absence of a plan makes it impossible to understand properly the meaning of its disposition.

1,725; "School Chapel, Tonbridge;" Messrs. James Brooks & Son. This was published in the *Builder* for May 14, to which we may refer the reader. The design shows the traditional idea of a school or college chapel, carried out with some touches of new and original treatment.

1,726; "St. Augustine's Church, Brinksway;" Messrs. Preston & Vaughan. A pleasing design for a small country church, with a little bell turret with a timber upper stage, which is picturesque, but looks out of scale with the rest of the building, *i.e.*, too small in scale and parts, it looks as if it had been designed to half the scale of the rest of the drawing. The drawing is apparently a very good one, hung too high to be properly seen.

1,727; "New Parish-room and School, All Saints', Plymouth;" Mr. Edmund Sedding. The architect seems to have caught something of the feeling of his late talented brother in the treatment of the staircase which leads to the upper floor, with porch over the top landing, but the detail of the building is rather coarse.

1,728; "Institute of Chartered Accountants: Portion of Elevation;" Mr. John Belcher. A large elevation in pencil on grey paper touched with white. Heavily rusticated piers between the ground story windows, with winged terminal figures over them, crossing a kind of plain frieze space between two string-courses, on which are painted on the wall surface the names of various towns; the second story is perfectly plain masonry with cornice windows inserted, the upper story a heavy Tuscan order supporting the under side of the large cornice, the orthodox architrave and frieze being omitted. The large and rich modillion cornice, however keeps its place pretty well. A frieze of figures is introduced under the windows of this story, interrupted by the lower part of the columns. The rusticated treatment of the upper story windows is rather wild, but the whole is an interesting treatment of old materials in a novel manner.

1,731; "Interior of Turkish Bath, Avery Hill;" Mr. Thomas W. Cutler. This is part of the *matériel* of "Cutler *v.* North," and shows what complete and elaborate work the defendant in that *cause célèbre* had done for him. It is a brilliantly-executed little water-colour showing an octagon room with Arabic foliated arcade and a ceiling divided out in one of the well-known forms of Arabic geometrical pattern; through the archway opposite the spectator is seen a further apartment in the same style. The prevalent tone of the decoration seems rather too blue, if the drawing represents it rightly.

1,732; "Grandtully Castle, Perthshire, as added to;" Mr. Thomas Leadbetter. There seem to be "two Richmonds in the field;" we published recently (March 12) a drawing of Grandtully Castle as intended to be added to, by another architect; we know not which is the right man. This is a very disagreeable rough scratchy pen drawing, and there is no indication, either by plan or otherwise, which is new and which is old, the whole looking equally time-worn and dilapidated in the drawing.

1,733; "Selsdon Park: garden front as altered;" Mr. W. F. Unsworth. It is the same here; there is no indication of what Mr. Unsworth has done to the house, what is his, and what is not. It is a neat but somewhat hard pen elevation of a long terrace front of a Late Gothic house, with a ground floor arcade in the centre portion, and a tower-like mass on the left, which groups effectively with the rest.

1,734; "Municipal Buildings, Bath;" Mr. J. M. Brydon. This is the perspective view of the new Municipal Buildings which we publish in the present number, and to which we refer the reader in place of any description here. Considered entirely apart from the circumstances in which the design was made, this might be considered, perhaps, somewhat tame and wanting in architectural invention for an important new building of the kind. But when we consider that this was a building intended to group with and keep up the traditions of Wood's

old buildings, we cannot but congratulate Bath on having obtained a new Municipal Building which so completely harmonises with the architectural associations of the modern city, and which is in itself dignified and stately in composition. The introduction of the quartercircle on plan at the angles, with the order and the band of sculpture on the walls, is an effective incident which, while it is a touch above the level of Wood, is quite in harmony with the general spirit of his work. The drawing, in pen line, is an admirable one.

1,735; "New Travellers' Club, Piccadilly;" Messrs. T. & F. T. Verity. This is orthodox club architecture, with a Corinthian order of pilasters running through the first and second floors, and a cornice and an attic over. We mention it as a design of a well-known new club, but we are at loss for anything to say about the architecture more than we have said.

1736; "View of the End of the North Transept of Westminster Abbey as restored;" Mr. J. L. Pearson R.A. This is a view from nearly the same point as that by Mr. John Begg, which was published in our first number of this year, and to our mind not so good a drawing. It appears to be either a pencil or a crayon-shaded drawing helped out with slight washes of Indian ink, and has a very finished look, but the tone is dull and melancholy. The architectural features of the restoration, on which we have before commented, are carefully shown, but the character of the whole is not so well conveyed as in our published illustration just referred to, especially in regard to the effect of the heavy angle buttresses and their pinnacles.

1,738; "Proposed Roman Catholic Church;" Messrs. Goldie, Child, & Goldie. An exterior perspective of a satisfactory church of the orthodox Gothic type, of reddish stone with a very solid-looking low square tower at the crossing. The colour of the drawing is rather harsh and inharmonious.

1,739; "Proposed Houses at Ledbury;" Mr. George C. Grocock. A pen drawing of rather a pretty and picturesque group of semi-detached small houses; each with an octagonal projecting bay which has only a row of small windows at top and bottom, the remainder being solid wall; the introduction of a half-timbered gable on the centre line of the block, and therefore half belonging to one house and half to the other, is rather an illogical treatment.

1,740; 'St. Michael's Roman Catholic Church, Newcastle-on-Tyne;" Messrs. Dunn, Hansom, & Dunn. An interior of a solid orthodox late Gothic church, satisfactory enough architecturally, but not made the best of by the drawing, a pen drawing which has been too heavily lined, and without apparently any eye for effect or any feeling for touch in this kind of drawing.

1,741; "Design for St. Bride's Foundation Institute;" Mr. Thomas Garratt. This is a well-executed and effective water-colour drawing, showing the proposed new building as seen from the corner of some neglected churchyard or some such enclosure overlooking the street, and which forms the foreground. The new buildings are apparently meant to be brick and terra-cotta, and are effectively shown in the drawing, but the handling of the drawing goes for more in the effect than does the architectural design.

1,742; "Design for Parish Church of St. Peter Drogheda;" Mr. T. L. Watson. This is published in the present number, and, as will be seen, represents a satisfactory and well-composed exterior of geometric Gothic type, and a good deal recalling the churches which Scott used to build in this style. The tower and spire are finely proportioned and group well with the church. As in the case of No. 1 740, the design owes very little to the ability of the draughtsman, the drawing being in a poor hard scratchy style, with no artistic feeling about it.

1,743; "'Kaikoura', Calne;" Messrs. Russell & Gibson. This is hung too high to be well seen, but we have a lithograph of it before us, which will be published among our illustrations in due time, and which shows it to be a picturesque country house of Gothic type, with some characteristic bits of detail about it. Among other things, an open square wooden gallery or gazabo is curious planted out over the angle of the house on a double arrangement of timber corbelling, one beam partly seated on the wall, the others crossing it from the other wall. The house has a very decided look of a dwelling suitable for a mountainous neighbourhood, in which the drawing shows it. The authors are to be commended for adding plans.

1,744; "Flats at Earl's Court-square;" Mr. R. A. Briggs. This is a good example of the effect which may be produced in a very plain utilitarian building by massing and grouping the windows. Two bays run right up the end of the building, the strong projecting cornice going round them; they are connected by light balcony railings, the solid floors of the balconies making deep shadows between the bays. There is a mass of unbroken wall immediately round the corner, and then the main entrance with a series of windows over it up to the cornice, and a segmental pediment. There is character and architectural effect in this, and as the drawing is an admirable one, the building gets full justice.

1745; "Exeter Cathedral;" Mr. H. Needham Wilson. This is the view of Exeter Cathedral which was made by Mr. Wilson for the *Builder* Series of Cathedrals, and was published by us in June, 1891; it is balanced by Mr. Horsley's drawing of Ely Cathedral (1756), executed for the same series, and published on April 2 of this year.

1750; "Pedestal for the Ayr Burns' Statue;" Messrs. Morris & Hunter. The designing of pedestals for sculpture is so much neglected in this country that it is gratifying to find an example of a pedestal carefully studied by an architect, and recognised as a thing worth exhibition at the Academy. The treatment of the pedestal is simple, but the mouldings (the stumbling-block of sculptors) are very carefully designed, so as to give solidity to the base and refinement to the upper portion. Beneath the crowning moulding of the pedestal runs a little kind of frieze of carved ornament in low relief, formed of foliage intertwined with scrolls bearing the names of towns connected with Burns's life; below on each face is a decorative nail-head for hanging wreaths on at anniversaries, each of which has a monogram worked on it: on the lower part of the pedestal are bas-reliefs in bronze affixed to the stonework. Larger details are given of all the architectural portions, and a small sketch of the complete pedestal and statue (Mr. G. A. Lawson is the sculptor). The whole is a carefully-studied sheet of architectural detail very well applied for its purpose.

1,752; "Frieze of the Sciences;" Mr. F. Murray. This is a sumptuous coloured elevation representing the upper portion of a marble internal wall and cornice, above which rises the architrave of a door in darker marble, and above on either side of the door-head are symbolical figures, draped, one with a maxillary sphere and one with a shield and coat-of-arms. A child figure or genius stands over the door. The figures are relieved from a lunette with a blue ground. The effect of the whole is rich; the tawdry gilded ornament over the upper part of the door architrave is a defect.

1,753; "Design for a chapter-house;" Mr. Heber Rimmer. This is the perspective of the design for which its author received the Soane medallion of this year, and on which we have already commented.

THE BARRETT-BROWNING MEMORIAL COMPETITION, LEDBURY.

IT is the intention of the inhabitants of Ledbury to erect a memorial to their illustrious townswoman, Elizabeth Barrett-Browning, who was the daughter of Mr. Edward Moulton Barret, of Hope End.

Having secured a corner site in the centre of the town, and opposite the old half-timber Market-hall, with frontages of 30 ft. 9 in. and 36 ft. to the Homend (the principal street) and Bye-street respectively, the Memorial Committee invited architects to submit designs in open competition for a Clock-tower and Institute. In response to the committee's advertisement, forty-five sets of drawings were sent in, and these have this week been publicly exhibited at the Market-hall.

Amongst the "Conditions" issued to architects, the following may be noted:—The clock-tower to stand at the angle of the two frontages, and the centre of the dials to be 45 ft. from the ground. A vestibule, reading-room (33 ft. by 19 ft. 6 in.) and library annexe to be provided on the ground floor, two class-rooms and lavatory on the first floor, and caretaker's rooms above. The entrance preferred near the angle of the streets. The cost not to exceed 1,600*l*. The selection to rest with the Committee (as already stated in our columns). Mr. Brightwen Binyon has gained the first premium of 20*l*., and the second premium of 10*l*. has been awarded to Mr. Lunn, of Malvern.

The conditions virtually determine the plan, and nearly all the competitors show identically the same arrangement, with, perhaps, the exception of Messrs. Guy Dawber and Langton Dennis, who have rather gone out of their way to make a simple matter complicated. The design of the elevations, and the grouping of the tower and the rest of the building, thus becomes of decisive importance. In the grouping, however, there is again a general unanimity, the majority showing a large gable supporting the tower towards the Homend, balanced by two smaller gables, facing Bye-street. The tower designs are very varied.

A visitor to Ledbury is at once impressed with the quiet, homely character of the town, with its many half-timber gables, its fine, though somewhat rambling, church, and its picturesque timber Market-hall supported on massive chestnut posts. It is an old-world place whose romance has not yet been stifled.

It is, therefore, disappointing, almost exasperating, to notice how many of the competitors have submitted designs of a pretentious and fussy character, altogether out of harmony with the quiet surroundings. Either, it must be supposed, these architects have not taken the trouble to inspect the site or acquaint themselves with the town, or else having eyes they yet see not.

This does not apply to Mr. J. E. Newberry's quiet design, which, although not being very original or striking, would yet at once incorporate itself into the town. A simple square stone tower stands at the angle, and large, half-timber gables, with brick lower stories, face the two streets. But the half-timber upper story of the tower looks heavy, and mars the general design, and its semi-tipped gables present a very ugly sky-line. Walking down the Homend one would see the Memorial Tower clear against the sky, and its outline is therefore an important matter. Messrs. Radclyffe & Watson, of Birmingham, send a quaint and clever design, which is one of the best there. The extended base of the lantern tower is pierced on two sides by ogee archways, over one of which is a niche for a memorial statue. In the middle stage, the square plan below grows into a half-timber octagon by bold curved splays at the angles, and this again becomes constricted by an inverted ogee curve to a smaller octagonal lantern, with ogee roof. The upper story of the main building is of half-timber, and the roof is hipped back from both façades.

Messrs. Guy Dawber & Langton Dennis are represented by the most artistic set of drawings of the exhibition. Their plan, however, is not happy except for the direct light it affords to the reading-room. The staircase, which has to be reached by crossing the reading-room, is cramped, and, having no well-hole, would not obtain much light from the lantern placed at the top. The "tower" is tile-hung, and does not extend to the ground, being developed by corbels from the angle of the building. Its upper story is suggestive of an Italian campanile,—a pyramidal roof supported by a colonnade,—and is a pleasing and clever piece of design. The main roofs are hipped back as in the last design, and the awkward outline thus occasioned is not so well corrected by the projecting dormers. The result is that as the roof lines slope up towards the tower, the tendency of the tower to look top-heavy is enhanced.

Mr. Brightwen Binyon's design both in plan and grouping follows the general type before described. It is a little jerky in outline. Thus in the elevation facing the Homend the ground storey projects, the first floor recedes, while the gable one projects again. So too in the tower, which after rising without interruption for nearly 40 ft. carries a corbelled out half timber stage, covered with a truncated pyramidal roof, from which rises an oblong lantern, with louvres, and whose roof is adorned with wrought iron cresting. A little more quaintness would bring the design more into harmony with its surroundings. The plan is well proportioned and convenient; the entrance vestibule is spacious and well lighted. It is questionable if the caretaker can be trusted with a dust shoot from his house on the top floor to the basement, as he will probably use it as a shoot for vegetable and other refuse.

Mr. Binyon proposes to face the building with best red local bricks, with red sandstone dressings. A band of terra cotta or carved brick round the tower about 6 ft. above the ground will illustrate some subject taken from Mrs. Browning's poems. On the side of the tower next Bye-street is a drinking fountain. The estimate of cost is 1,600*l.*

It is a little difficult to understand the committee's choice in their award of the second premium. The lower part of the tower and building generally is of brick with stone dressings, and of rather commonplace design. The gables are half timber. The upper part of the tower—or rather upper *half*, for it is divided exactly in the middle of its height by a broad weathering—is entirely of stone of a florid Gothic character, with traceried window and crocketted pinacles grouped in pairs and engaged to the sides of the tower.

Space does not allow a detailed notice of the more important designs of the remainder. Mr. A. Ardron sends a boldly-drawn design, showing a brick tower surmounted by a timber lantern. A half-timbered gable faces the Homend, and an ornamental plaster one overlooks Bye-street.

Mr. J. Johnstone has a well-proportioned tower, but of a too monumental character, and in the perspective drawing the sky apparently forms part of the design. The staircase oriel window is not satisfactory. A design of an ecclesiastical character is submitted by Mr. C. R. Ashbee. The angle buttresses of the tower look very wiry.

Messrs. W. Cook and W. G. Lewton send good examples of tower design, though in the latter the lantern looks too heavy for its supports. The designs of Messrs, Crouch & Butler, Houston & Houston, and J. W. Boyd are too ambitious, and miss the sentiment of the place, and so too does the "Greek Design" of Mr. G. S. Hill.

ROYAL ACADEMY SCULPTURE.

THE central work of the year is unquestionably Mr. Onslow Ford's "Shelley Memorial," a work at once poetic in feeling and decorative in effect. On a slab or sarcophagus of dark veined marble lies the naked body of the drowned poet, a laurel sprig in bronze encircling the head. The base of the composition, in the same marble, is brought out in front in a semi-circular pedestal on which sits a partially-draped female figure, the muse of lyric poetry(?), leaning with the right arm on a lyre, the left hand stretched out as if commanding attention. On the pedestal behind sit, back to back, two winged lions, whose wings support the slab on which the body of the poet rests; the modelling of the head and mane seems suggested by Stevens's celebrated little lion figures which decorate the railing of the British Museum. The only portion of the design which rather jars with the rest is a too realistic bronze tree, with bare branches and rounded bright fruit, which grows from the pedestal at the back, and rather clashes with the ideal and perfectly sculpturesque character of the rest of the work. The bright bronze plaque with the name of Shelley engraved on it, and some bronze festoons bearing small inscriptions, also standing out brightly from the dark marble, increase the decorative effect of this very original monumental conception.

Mr. Alfred Gilbert's chief work is a posthumous bust, or rather half-length, of the late Baron Huddlestone, in his judicial robes. It is in gilded bronze, and the head is very forcibly modelled. Mr. Gilbert also exhibits a striking half-length in the same manner of execution, of Sir George Birdwood, holding in his hand a small Indian idol, to which he seems to be calling attention. Here also the head is remarkably expressive. An odd little nude statuette called "Tragedy and Comedy," a man holding a comic mask and at the same time looking down in alarm at an insect on his leg, which appears (from the action of the limb) to have stung him. It is a little sculptor's joke, not quite in the happiest vein. A superb chain of office for the Corporation of Preston, completes Mr. Gilbert's contributions to the exhibition. It is modelled with that largeness of style and multiplicity of detail which characterises Mr. Gilbert's work of this class, and in this respect is worthy of the best period of the Renaissance, but it looks rather an uncomfortable chain to wear.

Mr. Harry Bates's bas-relief, of "The Story of Endymion and Selene—How she conveyed him in a sleep to old Mount Latmos" is one of the most successful works this artist has produced. It is in low relief, and the car of Selene is drawn by two horses with wings on their feet, whose heads are modelled on the type of the Parthenon horse. The head and torso of Endymion are reclined in the arms of Selene, who sits on the right of the composition, her drapery making a moon-like outline round her head. The legs and feet of Endymion point forward towards the horses' heads, making a level line which is of great value in the composition as a contrast to the curved lines of the Selene figure, and as impressing on the whole group a sentiment of repose. The same sculptor's Memorial of the late James Tennant Caird, a bronze alto-relief figure of an angel in full flowing drapery writing on the top of a memorial slab, is fine in idea and in its spirited action, but the indication of the figure beneath the drapery is rather incomplete and the hips in fact seem lost, there is no place for them under the modelling of the drapery, which moreover is somewhat too disturbed in its folds and hollows. A beautifully-modelled little silver figure for a door-knocker is also defective in relation to its purpose, as there is no indication in it of anything to knock with, unless it be the heels of the little figure. A knocker should leave no doubt of its function; there should be something which is obviously meant to knock with, and there is no indication of that here.

Mr. Adrian Jones's great pyramidal group of "Duncan's horses," in the middle of the central hall, composed of three fighting horses, is spirited and energetic, but the subject is hardly worth the space it occupies and the talent rather to our thinking, thrown away upon it. Among the other works in the Central Hall, Mr. A. Drury's "Harmony," a nude female playing the violoncello and singing with open mouth at the same time, is rather odd in effect than beautiful, and some of the modelling of the figure seems more masculine than feminine in type; the bow-hand is fine and nervous, but the violoncello does not combine happily with a life-size ideal figure. Mr. Fehr's seated half-draped female under the title "Favourites" (the favourites being birds) looks as if the author had studied the feeling and spirit of Mr. Ford's work a good deal, especially in the head; it is a pleasing and graceful work, but hardly rises above that level. Miss Beatrice Browne's "Pearl" is one of those fancies about the pearl on which there has been rather a run of late years both in sculpture and painting; this is a nude figure of a young girl reclined in a rather uneasy attitude within a colossal oyster-shell; it is a carefully-executed piece of work, but fails in not being beautiful, and beauty is the one excuse for this kind of fancy; the face is plain and un-*spirituel*, and the head uncomfortably posed. Mr. G. W. Wilson exhibits an effective and pleasing model for a wall fountain; an architectural alcove with Renaissance type of ornament, at the back of which stands a pretty female figure holding the conventional urn for the water to flow from.

To return to the Lecture-room, we find among the larger works in the middle of the room Mr. G. Frampton's "Children of the Wolf," we presume the infants Romulus and Remus carried home by the peasant who found them, a fine figure of a man; but there is a want of imagination in the work; it might be any stalwart man bringing home any two babies; there is not the slightest attempt to give special character to the children who certainly ought to show signs of their brutal bringing up, but they are two as innocent round-faced babes as one could wish to see. Power of modelling without power of imagination, which is at the root of so much of the shortcoming of English sculpture. Mr. Albert Toft's nude figure, "Fate-led," which was exhibited in plaster last year, is here in marble and seems considerably improved from the original model; the face conveys rather the idea of somnambulism, but it is a figure with an idea expressed in it. Mr. Fehr's little "Morning," a bronze statuette of a nude figure with her hair blown in the breeze, is a pretty conception.

Architects may look with interest on Mr. Pegram's two reliefs for the main entrance of the Imperial Institute, "Industry" and "Britannia," and feel glad that a sculptor of so much ability is employed on a class of work too often left to the race of "carvers." "Britannia" is the most original figure of the two, and the most powerful; "Industry," who winds a skein off a turning drum or reel, is awkwardly posed on the edge of a seat, with one leg stretched right across the panel and the other doubled back, an indication of the sea forms a horizontal line of broken up surface on the background of the panel. Still this is sculpture distinctly above the general level of decorative architectural sculpture in this country.

Mr. Onslow Ford's "Gordon Memorial Shield," presented to Miss Gordon by the Corps of Royal Engineers, is an interesting bit of decorative metal work; it takes the general shape of a form of shield familiar in Renaissance paintings, with an alto-relief of a naked St. Michael slaying the dragon, in an oval in the centre; around the margin are small figures of children intermixed with chased ornament; the central group is the only portion which seems to have any symbolical reference to the subject of the shield.

Among the smaller works of the year Miss Ruth Canton's bronze head of "Azrael, the Angel of Death" has fine poetic character. Miss Esther Moore's "Head of a Boy" is a work with distinctive character, also Mr. Pomeroy's noble and dignified bust of "Miss A. Broke," a bust treated in a decorative manner, with a band of conventional floral ornament surrounding the base. Miss Beatrice Angle's bust of "A Bacchante," and Mr. Partridge's "A Dream," a very low bronze relief of a head in profile, should not be passed over. Among animal subjects are several very clever little bas-relief studies of horses by Mr. Gilbert W. Bayes, especially "Carting Sand—France," in which there is a novelty of style and execution; and Mr. J. M. Swan exhibits two small bronzes of an "African Panther" and a "Lioness Drinking" which exhibit (the former especially) the same forcible realisation of animal character and action which we see in his paintings.

INCORPORATED ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

THE following gentlemen having satisfied the Examiners at the Examination held in London on the 1st and 2nd ultimo, certificates have been granted them by the Council:—

Anderson, J. R., London.
Andrews, C. P., London.
Ball, J. B., London.
Bradshaw, J. B., Gateshead.
Cross, F. W., Walsall.
Fitton, G., Reading.
Hills, H. J., London.
Lloyd, C., Chatham.
Shackleton, C. W., Coseley.
Veit, L. J., Ipswich.
Yates, F. S., York.

The next Examination will be held in Leeds, on Friday and Saturday, September 29 and October 1.

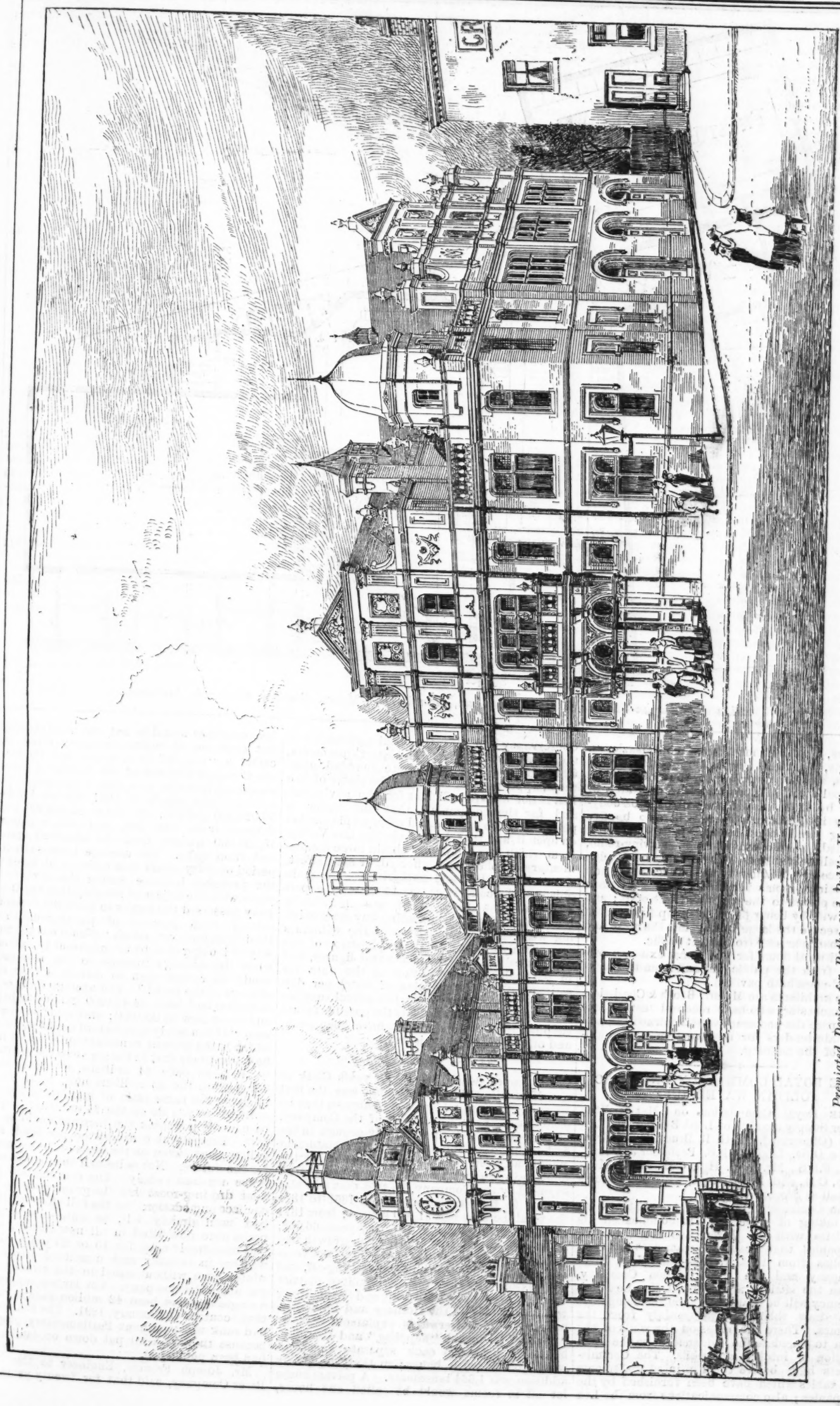
BATHS AND PUBLIC HALL, CHEETHAM, MANCHESTER.

THE design we publish for the New Baths and Public Hall, at Cheetham-hill, Manchester, was selected by the Baths Committee of the Manchester Corporation, out of a number of designs submitted in open competition.

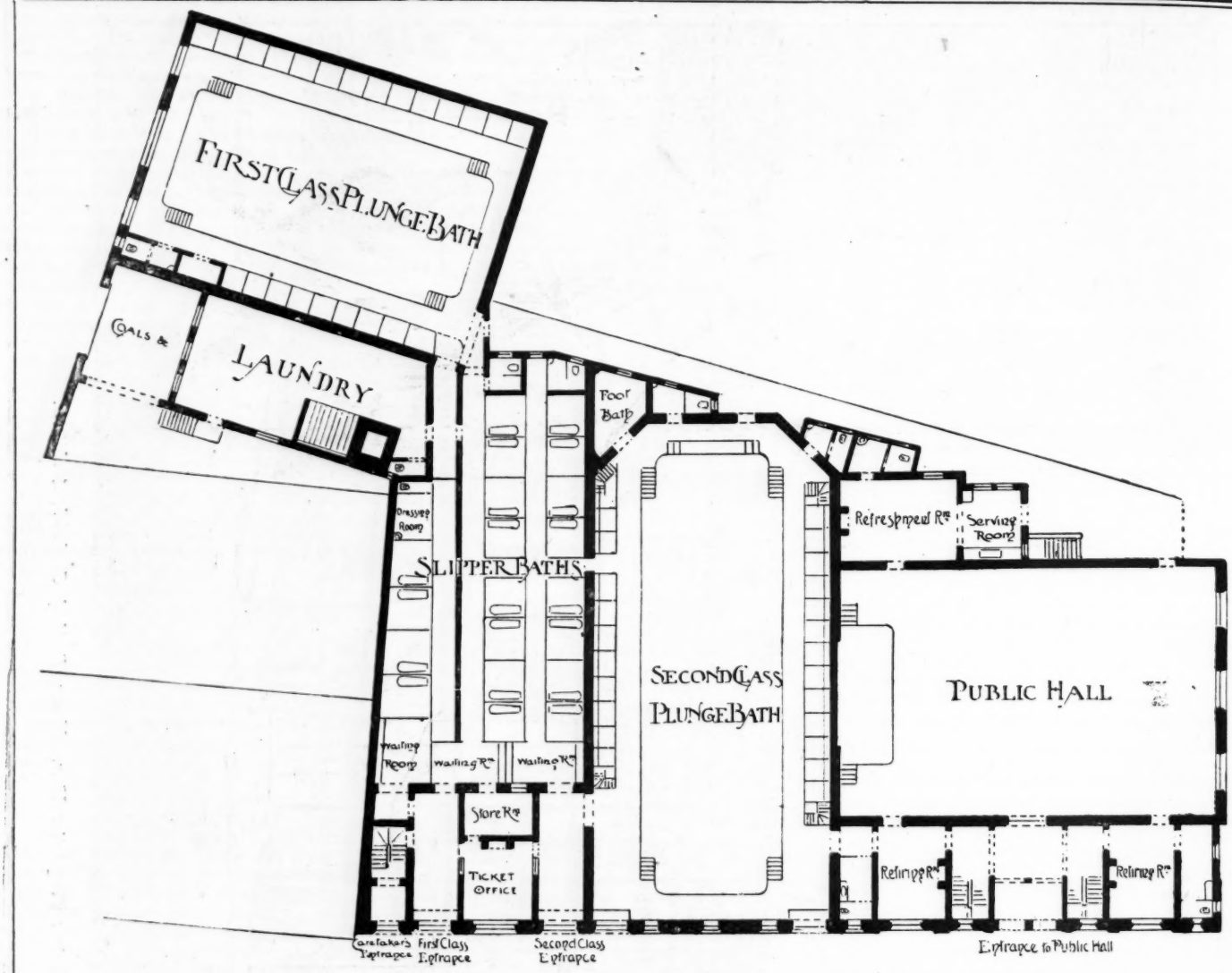
As will be seen from the ground plan, the site is very irregular in shape, with a good frontage to Cheetham Hill-road and another smaller frontage to Back Halliwell-lane. It has a fall of about 12 ft. from the highest to the lowest point. Advantage has been taken of this conformation of the site to place the Public Hall on the higher portion thereof, and the Baths on the lower, the Boiler House, Laundry, &c., being at the lowest point easily accessible for coals, &c., at the street level.

The first-class swimming-bath will have a water area of 54 ft. by 27 ft., and the second-class bath one of 75 ft. by 24 ft. The latter will be surrounded by a balcony for the accommodation of spectators on the occasion of swimming-fêtes. The pavilion in which it is situated is so arranged as to be capable of being used as a gymnasium in the winter months. The first-class swimming-bath is so planned that it can be used by ladies on such days as may be set apart for that purpose; and a special dressing-room has been provided for their accommodation. There are twenty slipper-baths and three waiting-rooms, and these will be classified as ladies' and men's first and second-class. A commodious residence for the superintendent will be situate over the ticket-office and entrances to the baths, and in connexion with this department there is a handsome tower for the reception of a public clock.

The public hall is to be on the ground-floor level, and be practically a separate building, designed to be capable of being used for



Premiated Design for Baths and Public Hall, Cheetham, Manchester: Perspective View.—Messrs. Booth & Chadwick, Architects.



Plan of Baths and Public Hall for Cheetham, Manchester.—Messrs. Booth & Chadwick, Architects.

lectures, public meetings, conversaziones, concerts, bazaars, dramatic performances, dances, and all other proper purposes. The principal room will have a clear floor area of 64 ft. by 42 ft., and there will be a balcony-gallery in addition. There will also be five retiring and cloak-rooms, with lavatories attached, a refreshment-room, serving-room, and cellar kitchen. There will be a fine entrance-hall, leading to the public-room; and the retiring-rooms for ladies and gentlemen will be placed to the right and left of it; and these will, by being placed close up to the main road, secure the large hall against the noise and disturbance arising from street traffic.

Additional doors for occasional exit are provided from the public hall and from the large second-class bath pavilion.

The architects are Messrs. Booth & Chadwick, of Manchester, who have received instructions to prepare the necessary working drawings, and to obtain tenders for the erection and equipment of the building.

THE ROYAL COMMISSION ON METROPOLITAN WATER SUPPLY.

THE Royal Commission on Metropolitan Water Supply consists of Lord Balfour of Burleigh (Chairman), Sir G. B. Bruce, C.E., Sir A. Geikie, D.Sc., LL.D., F.R.S., Professor J. Dewar, M.A., F.R.S., Mr. G. H. Hill, C.E., Mr. J. Mansergh, C.E., and Dr. W. Ogle, with Mr. Francis Gaskell as Secretary.

The Commission has held two sittings for the taking of evidence. It commenced its inquiries with the River Lea and the two companies that draw a great part of their supplies from that river,—the New River Company and the East London Company. When the sittings are resumed, the Lea Conservancy will be heard, and then the companies that draw their supplies mainly from the Thames. There are maps on the walls of the room to elucidate the evidence as to the local position of intakes and wells. The Commissioners have before them printed statements and tables which have been furnished by the companies; also communications from the Lea Conservancy and from the local authorities in the districts referred to. The latter statements, from the questions that were founded upon them, appear to suggest that the water of the Lea is not always sufficient for the navigation and for the companies, that the water is polluted by the manure and other traffic carried on upon it, and that the wells in the Lea Valley, from which the companies obtain large supplementary supplies, have affected, or may affect, the wells of the local authorities. The main object of the companies was to show by expert evidence that their wells are practically inexhaustible, without affecting any other existing wells. The examination of the witnesses was mainly directed to the explanation of the companies' printed statements and figures, and in particular to the testing of the data for estimating the consumption of water per day per head of the population, the actual supplies from all sources, and specially the possible future supplies from the wells that have been sunk, and others that are projected.

The New River Company.

Mr. James Searle, for twelve years Clerk of the New River Water Company, was the first witness. He was told by the Chairman that he need not go through a history of the Company, because that was dealt with fully enough in the first eight paragraphs of the printed statement which had been handed in. Asked about the increase in the number of houses in the district supplied by the Company, he said that was also set out in the statement. From 1851 to 1871 the total increase was 31,000 houses; from 1871 to 1891, 35,000; making for forty years 66,568, or a yearly average of 1,664. The growth had been fairly steady, but in the last two years there had been a considerable falling-off, and the reason was that the Metropolitan district was to a great extent filled up, and the building was now chiefly in the Hornsey and Edmonton parishes. He afterwards explained that by "houses" he meant "supplies," and that in a block of buildings each separate tenement would be called a house; so that the yearly addition was 1,664 tenements. A private house let off in rooms would be called one house, because there would be but one rated occupier; but each set of rooms separately rated was called a "supply" or a house, and therefore the Company's return of the number of houses would not coincide with that of the census. The average daily supply in 1891 was set down at 33,028,000 gallons, of which 22,500,000 were derived from the Lea, and the remaining 10,500,000 gallons from the Chadwell spring and from wells. The average increase in the period of forty years was taken as an index of the probable increase during the next forty years with the object of showing that the Company possessed the means to meet the demands arising from increase of population. The Chairman, however, asked, "Would not the true way of looking at it be to endeavour to find out what the average increase to the new ratio would be, rather than to deduce it from the average of the past?" The average daily consumption had been 24,440,000 gallons in 1872, and it was now 33,000,000; and, said the Chairman, "If you apply that ratio of the 33 millions, which is the present consumption, would it not be fairer to say that in twenty years the increase would have been 44 millions, if the ratio is taken from the 33 millions now, rather than applying the same ratio of increase to the 33 millions as you do to the 24 millions?" The witness did not think the increase would be so fast. The present consumption per head, 28½ gallons, was taken as the basis of the estimate for the future. Not quite half the district was under constant supply. The consumption per head had increased with the growing desire for comfort and luxury; but the full effect of that had been already felt, as water-closets and baths were now fitted in all new houses, and had been freely used for 15 or 20 years. Dry weather in summer and continued frosts in winter were without equal in the strain they put upon the company. The largest supply in a single day had been 42 million gallons, and that occurred in January, 1891. The Company had sunk wells without Parliamentary powers because they were all put down on land that had been purchased.

Mr. Joseph Francis, Engineer to the New River Company, said that for twenty years he

had superintended the construction of the wells. Chadwell spring now yielded about 2,000,000 gallons a day, and the wells 8,500,000; but the daily available supply from these sources was estimated at 34,000,000 gallons, or 23,500,000 more than was now taken. The 34,000,000 was arrived at by taking what each well could do, and had done for weeks together, pumping day and night, taking each well separately, and then adding the results together. The witness gave particulars of the wells, which we summarise in the following table: The first column gives the depth in feet, and the second the depth of the borehole from the surface for each well that has one, and the third the year of completion. In the case of Turnford Well, the well was first sunk into the chalk with borehole, and the deep boring was done from 1875 to 1880. The last column gives in millions of gallons the details of the estimate of 34,000,000 gallons as the available daily supply. Amwell Marsh was given as 2,800,000 gallons, and Hoddesdon as 2,160,000. The letter (*h*) indicates that the wells have headings:—

	Well. ft.	Boring. ft.	Year.	Million galls. daily.
Broadmead	26	831	1879	1½
Amwell End	72	419	1848	1½
Amwell Hill (*h.*)	90	160	1848	3¼
Amwell Marsh (*h.*)	109	392	1885	2⅔
Rye Common (*h.*)	204	—	1886	3⅔
Hoddesdon	54	403	1868	2⅛
Broxbourne	197	—	1886	4⅓
Turnford (*h.*)	167	1,001	1867	3⅔
Cheshunt (*h.*)	130	157	1846	⅔
Hoe Lane, Enfield (*h.*)	192	—	1886	3⅓
Betstile	142	300	1872	½
Highfield (*h.*)	178	—	1887	3
Campbourne	213	—	1888	3⅓

The general policy of the Company was to bring in the supply from the wells to supplement that from the Lea and the Chadwell spring. All the wells are in use except Cheshunt. Broad Mead well had yielded 1,500,000 gallons daily for seven weeks together. The figures by no means represented what could be got out of the wells by working the engines a little faster. There was connexion between the Turnford and the Cheshunt wells, which were a mile apart, and that was the reason why Cheshunt was put down at 750,000. Anwell Hill and Anwell Marsh to some extent affected each other; but the quantities named were given when both were at work, as they had been for a few weeks together. Only in the cases named did the pumping at one point affect the supply at another. He did not think there was any ground for complaint that their pumping operations had depleted other wells in the district, except so far as it affected any spring in the immediate neighbourhood of a well. The Chairman read a statement by the Cheshunt Local Board that the pumping operations of the New River and the East London Companies had drained two artesian wells sunk by the Board, and one artesian well of the Waltham Gas Company. These wells, 150 ft. deep and driven into the chalk, were three years ago overflooded, but now the water did not rise within 50 ft. from the surface, unless the pumping ceased for a long time. The witness did not understand that, because the level of the water in the Company's well had never sunk 50 ft. or anything like that, and the Board's Surveyor had reported the yield as satisfactory and the level as unaltered. He afterwards explained that they pumped down to the depth of 60 ft. or 70 ft., and when they stopped pumping the water rose, and the level was unaltered. The County Council of Hertford had informed the Commission that many of the rivers of the county now rose considerably below the point at which they had their source twenty years ago, and were much reduced in volume, that the volume of many natural springs was much diminished, and that the water-levels of the county were materially lower than in the past. Of these complaints the witness had not heard. Nor had he heard of a complaint by the Enfield Local Board, who were advised by their Surveyor that the lowering of the water-level in the chalk was due to the sinking of deep wells by the New River and the East London Companies. From Turnford Well northward, he said, there had been no lowering whatever of the level in the chalk during the fifteen or twenty years he had noticed or taken the levels. There had been no lowering of it since the new wells had been sunk. These replies suggested to Sir G. B. Bruce the question whether between Turnford and London there had been a falling of water; and the answer was that under London there had been a considerable falling off, and that influence extended up towards Enfield. Under London it was nearly 18 in. a year; and the standard water-level had been for some years falling. The Company had old wells they were not using now at Hampstead Heath and Hampstead-road, and at these wells they had the opportunity of measuring the water-line. It was sinking there although they were not pumping. The fall of water in the upper valley of the Lea no doubt arose from increased drainage. Fields were drained and the water that would otherwise water-log the upper part was drained off into the springs, and that accounted for rivers rising lower down. The water was taken off so much more rapidly than before that the upper ground did not get so well saturated. He had no doubt that the quantities of water named for each well could be depended upon, supposing all were pumped together continuously. There would not be a general depression, but a local cone of depression at each well. There would not be danger of pollution from surface water, because the surface was covered with drift clay, sand, and soil, so that the water was filtered before it could get downward. He did not think that any wells the East London Company could sink in their district would affect the yield of the New River Company's wells; taking into account percolation and area, there seemed to be plenty of water for both for many years. "There must be a limit somewhere," said Mr. Hill; and the witness rejoined: "Yes, but we find that what we pump has practically no effect upon the surface level, and therefore it is evident that a very much larger quantity could be pumped without doing any appreciable harm." If the pumping were more than the supply, the level in the chalk might be lowered; but he had no fear that the demands of the companies would have that effect. Having investigated the matter carefully, they were quite satisfied that the water they were pumping would not go to feed springs or streams or rivers, except in local cases; the water was really passing down towards the south-east end of London, and it did not get into the rivers at all. The pumping would not affect the river Lea itself, but it would affect the Thames at Woolwich. There was no diminution in the discharge of the river Lea compared with a few years ago; and this was shown by a return put in giving the discharge at Fields Weir for each month of the year from 1880 to 1891. Mr. Mansergh pressed upon the witness the point that the wells were to be relied upon for four times the supply they yielded now. The witness said that was hardly it. They wanted an average of 47,250,000, and they had got 56,000,000. The 34,000,000 a day from the wells might be wanted only for a few days during the year. "But in a very dry season it would be longer than a very few days?" "Yes, but we never find that the maximum lasts very long." The 34,000,000 was not what it was proposed to draw every day; it was merely a store to meet any excessive claim that might come. The company had power to take 22,500,000 gallons from the Lea at a point a mile below Hertford, and he had never known a time when that quantity could not be got. The river Lea people had not complained that too little was left for navigation. Wet or dry seasons did not make an appreciable difference in the quantity obtainable from the river; the level of the water in the wells varied with the seasons to the extent of a few feet. The water from Belstile was pumped into a reservoir; with that exception, all the water from the Lea, Chadwell Spring, and the wells was conveyed to London by the river, which was covered in for three miles, and partly so for a mile and a half. There was great expense in keeping it open in time of frost; but the full quantity could always be got through. The river was fenced almost throughout its course; surface streams did not run into it; and it was patrolled and watched and carefully guarded against pollution. The water given by the Chadwell Spring varied very much. The average was about 3,500,000 in the twenty-four hours; but 2,500,000 was the average for last year. For a short time, it has been under 500,000 in dry seasons. The figures of 4,500,000 given to the Commission twenty-five years ago was rather too high. The river water may not always be so clear as the well water, but it is equally good for domestic consumption after it has been filtered. The lowering of the water level under London he attributed to the increased pumping that had taken place from under London itself, and the difficulty that the water had in getting down there, through the restrictions in the channels in the chalk. After wet seasons the level was higher in the chalk; after dry seasons it was somewhat lower; but changes did not follow immediately, and it was difficult to trace the connexion between rainfall and the level in the chalk, except in a general way. Asked what was the condition of the lower part of the Lea in summer time, he said there was always plenty of water in it. Reminded that Mr. Binnie had told a former Commission that the effect of the increased abstraction of water was "to reduce it in summer time to a stagnant pond," he replied that Mr. Binnie did not say there was a want of water, but that it was stagnant. The movement of the traffic would give plenty of circulation in the water if it was only kept free from sewage matter. "Of course, if you put sewage into it, it takes a very large flood to keep it always clear. There is no want of water at all." Pressed by the Chairman, the witness said the companies always left the navigation quantity, but sometimes took all that remained. There was always left as much as the traffic could need, and it was enough to keep the water from being stagnant, providing large quantities of sewage were not turned into it. The Chairman asked for the minimum discharge from the Lea at any period within the last five or ten years; but the witness had only the monthly averages, and one was as low as 44,000,000, although the daily average in that year (1887) was 104,000,000. At such a time the New River Company would still take its 22,500,000; but the East London Company, having storage reservoirs, would not take much from the river. Questioned as to the population and the nature of the country above the company's intake, Mr. Francis said that Luton was eleven miles above it, and the sewage of the town was kept away from the river by being taken to a sewage farm on high ground. The general character of the country through which the Lea ran was purely agricultural. The Lea Conservancy took great pains to prevent anything like pollution. There was a manure traffic in barges, and it went on to a small extent above the intake; but the navigation did not extend much above the intake, for it stopped at Hertford. It would be possible for each company to store about 10,000,000 gallons a day during the winter months of the surplus water of the Lea, but there was no scheme in hand; indeed, it would be possible for them to store 365 times 10,000,000 gallons, but, the Chairman pointed out, the storage would have to be at the rate of 20,000,000 gallons a day for half the year. Still, nothing had been done because well-sinking was a much simpler way of obtaining a supply. But, for all that, he wanted to test the storage plan. There was room at Walthamstow for reservoirs which would cost 300,000*l.* or 400,000*l.* The reservoirs would not be of great depth, and there would be no danger from a great head of water. The reservoirs would want puddling, because the London clay does not extend so far. "We know it is not as happy a site as we should like," but the Company had carefully considered the possibility of having to erect reservoirs. In the area from which the water-supply was derived, the increase of population was very slow, and it had been more than met by the increased precautions of the Conservancy in diminishing population. He did not agree with the statement that during flood time the water was exceedingly bad. The worst time was just at the commencement of the flood, and means were taken to shut it off partially or wholly. As soon as the first flush was over, the water was not bad. There was a good deal of sand and clay in it, but it was not polluted. It would not be true that the condition of the flood waters was "as bad as the main drainage outfalls at Crossness." The flood water at their intake was never bad; it was turbid with sand, clay, and chalk; but it had not the offensive smell or the bad colour of sewage. The water from the wells was filtered with the water from the river, not because it needed it, but because it was cheaper to bring it along the river channel than to lay separate pipes. The New River water stood highest amongst the river-derived waters, and the river-borne pollution from navigation was gradually decreasing. The flood water, when stored, would be good water, provided you did not take just the top of the flood; and he did not think that the bulk of the water would have to be rejected on account of the pollution brought down by heavy rains. Tottenham, Enfield, Ware, Cheshunt, and Hoddesdon had independent supplies.

[*Continued on page* 420.

Illustrations.

INTERIOR OF CHURCH OF ST. MARY WOOLNOTH.

AS our readers are aware, there has been some foolish talk about pulling down this fine church in consequence of its insanitary condition owing to the mass of human remains beneath the floor, it being apparently considered in these days preferable to destroy a remarkable church rather than go to the expense of removing the remains of the burials of the past. It is to be hoped this absurd and discreditable proposal will not be really carried out.

The site has been occupied by a church for many centuries; the building preceding this one was injured in the fire of London, and repaired by Wren; why soon after this it was pulled down no one seems to know. The present church was designed by Wren's pupil Hawksmoor; the exterior, heavy and castellated as it is in appearance, has nevertheless a kind of defiant originality in the treatment of the principal façade. The interior, one of the most convenient (for congregational purposes) and one of the most architectually effective church interiors in London, is a Greek cross on plan, with shallow arms, and three Corinthian columns at each angle (as shown in the drawing), with a segmental dome over the central area. The view shows part of the interior as it was remodelled by Mr. Butterfield in 1876, when the galleries were removed, but in order to preserve their fine carved fronts the architect bethought him of the happy idea of fixing them as an architectural feature round the walls; their original use is sufficiently obvious to tell the history of the change.

The church was built in 1716. Among the persons connected with its history was the Rev. John Newton, the joint author with Cowper of the "Olney Hymns," who was rector of the church for twenty-eight years, and was buried there in 1807. The lithograph is from a monochrome watercolour drawing by Miss A. Fooks.

ILLUSTRATIONS OF OLD CHESTER.*

V.—THE LADY'S BOWER, WATERGATE-ROW SOUTH.

THIS very interesting little court, with its covered gallery, measuring only about 16 ft. by 14 ft., is in this series illustrated for the first time, as it is very little known, and has fallen into a dilapidated state, much to be regretted. In the view no attempt has been made at restoration except the removal of a wall under the gallery and abutting against the column, to form a passage for the convenience of a house in the rear, and the introduction of mullions in the windows, which have been modernised. All the woodwork is oak, elaborately carved. In the adjoining mansion, now in the occupation of Mr. Maddon, cabinet maker, are some interesting remains, including a noble fireplace of great height, now almost hidden, and a pendant of great beauty, and at the back of this tenement is a house before alluded to, in which are remains, including fragments of stained glass, a fine old stone fireplace, and other carvings, which will form subjects for future illustrations, when the whole will be fully described, with some account of the distinguished Cheshire family who originally made it their town residence. THOMAS P. IVISON.

MUNICIPAL BUILDINGS, BATH.

THIS is the amended perspective view of Mr. J. M. Brydon's accepted design for the new Municipal Buildings at Bath, the elevations and plan of which we published on January 9 of this year. We did not then give the perspective in accordance with Mr. Brydon's express wish, as he was not satisfied with it in its original form.

We gave a very full description of the design and plan in our review of the competition designs on December 26 of last year, to which it is unnecessary to add anything here; we may mention again that the block on the right or south wing contains the municipal offices proper, and that on the left or north wing contains the technical schools. The plans for the whole are in hand, and will be carried out substantially as in the competition design.

The drawing from which the illustration is taken is exhibited at the Royal Academy.

* For preceding views of this series, see *Builder* for February 6, February 27, March 12, and April 9 last.

DESIGN FOR PROPOSED R. C. CHURCH OF ST. PETER, DROGHEDA.

THE illustration shows a drawing submitted in competition for an Irish church several years ago.

The church was designed to take the place of an existing structure on the same site, and the Sacristy and other buildings shown on the right of the drawing had been built as an addition to this older church, and were to be preserved in connexion with the new church, and this to a small extent controlled the design.

The internal dimensions of the proposed church were as follows:—Total length, 138 ft.; width over aisles, 58 ft.; ditto over transepts, 88 ft.; and height, 52 ft. 6 in. The spire was 220 ft. high. Confessionals were provided in the nave between the buttresses of side walls.

Mr. T. L. Watson, of Glasgow, is the designer, and the drawing is at present in the Royal Academy Exhibition.

THE ROYAL COMMISSION ON METROPOLITAN WATER SUPPLY.

(*Continued from p.* 419).

Mr. Ernest Collins said he was the engineer in charge of the distributing works of the New River Company, and was responsible for the tables laid before the Commission. The average supply per head per day for all purposes, trade and domestic, was 27·10 gallons in 1872, 28·77 in 1881, and 28·49 in 1891. Constant supply had been introduced, and extended to 17,557 houses in 1881, and in 1891 to 68,000, out of a total of 154,568. The increased consumption from 1871 to 1881 was partly due to the bad state of the fittings in Shoreditch. In 1883 the company made great efforts to suppress waste; and it now employed thirty-eight waste inspectors, while Deacon's meters were largely used to detect flow at night. An average of 28 gallons per head per day ought to be taken as the maximum consumption for trade and domestic purposes for the New River district. Fifteen years ago a directly-supplied closet was quite exceptional. Now every 20*l.* house had a water-closet, and houses above 25*l.* had often two, and a bath. Future increase would perhaps bring more efficient means of checking supply. London, he thought, could not be compared with any other town, because London had more baths and water-closets. The consumption had reached 32½ gallons per head per day in July, 1887, and 32 in July and August, 1884. The average was arrived at by dividing the total by the number of supplies and estimating seven and a-half persons to each. The figures had been tested by experience. It was reckoned that about a quarter of the supply went for trade purposes, including railways and breweries and street watering. He put 28 gallons per head as the maximum, because there was still great waste going on that could be prevented. The constant supply was the most economical with proper fittings, but the intermittent without them. People who had put on proper fittings on notice were impatient for constant supply, and the Company were obliged to give it,—when perhaps only ten houses out of fifty were ready for it. The consequent waste he estimated at 3,000,000 gallons a day.

Mr. Edmund L. Morris, engine-superintendent, gave evidence as to the capacity of the engines at the wells. At most there were two sets of machinery; but the stand-by power was in the number of wells, at which, in the aggregate, the quantity of water pumped was only one-third of what could be pumped. Mr. Morris has also charge of the filtering operations, which he described in detail. He said there was no test other than that of colour for the efficiency of the filtration. When the sand was scraped off a filter-bed it was washed until it was quite clear of foreign matter, and then it was used again. Sir A. Geikie asked, "Can you be sure that you take away all the organic material?" and the answer was, "All the particles are separated and washed, and it is thoroughly cleaned."

The Chairman remarked that this concluded the evidence put forward as specially referring to the New River Company; but at the next sitting Mr. Francis was requested to furnish a plan showing for each well the normal level of the saturation, the level to which the water rises after pumping has been stopped for some time, and then the level to which the water must be pulled down by pumping to give the quantities mentioned in the table.

The East London Company.

Mr. W. B. Bryan, Engineer to the East London Company, was asked to describe the company's intakes. He said that at Chingford Mill they had two intakes,—a high-level intake at the mill-head to supply their high-level reservoirs, and one at the tail of the mill to supply the low-level reservoirs. They took out of the stream flowing past their works on the average 32,000,000 or 33,000,000 gallons a day. In time of drought, the amount of water that passed below the intakes was not very great; but it was never reduced to nothing. The navigation, having a prior right, was always full. The witness was reminded that the average quantity taken was 36,000,000 in 1891, and 37,000,000 in 1890, and he assented to the statement that the New River Company might, if they chose, take over and above their 22,500,000, one-half of what was taken by the East London Company; except so far as the latter took water when the river was in flood for storage in their large reservoirs. The Conservancy took as much water as they required for the navigation, and the East London Company never objected to the Conservancy taking its full amount. It might be that it had taken "only as much water as was necessary for the passage of the traffic," but he was not aware that any complaints had been made to his Company. He estimated that it would be safe for his company to take 30,000,000 gallons a day from the Lea. It had taken nearly its full amount from the Thames—9,750,000 for four weeks in 1885; and he believed it might safely have taken 10,000,000. The quality of the water at the point at which they got it was improving; and it was not taken when the river was in flood, when the Company relied upon its large storage reservoirs in the valley of the Lea. Field's Weir is at the junction of the Stort and the Lea, and the quantity of water passing over it after the New River Company had taken its allowance was stated before the River Lea Committee to be 15,300,000 gallons a day; but the witness said that was quite a mistake, due to the erroneous way in which the gaugings had been taken. This led the Chairman to remark: "What we want to know is the minimum quantity going over the weir for a certain number of days or weeks in the summer." The witness said he could give every day for twelve years; and he mentioned a day in August, 1887, when the quantity was 22,185,000, and another in October, 1889, when it was 30,000,000. But, in 1887, two wells were in process of construction, and water was pumped into the river, but it would not exceed 1,000,000 gallons a day. The most adverse condition to be encountered was a prolonged frost, following a dry summer. Then the Company must draw upon its wells and its storage reservoirs. Still, at the worst it might count on getting 20,000,000 a day out of the river. If 40,000,000 a day were required, 20,000,000 would be taken from the Lea, 10,000,000 from the Thames, and the remainder from the wells and the storage. The full storage capacity was 910,000,000 gallons. There was no means of telling what was taken daily from the River Lea. When the Lea was in flood the intakes were absolutely closed, sometimes for a week together and sometimes longer. On the Lea works there were about twenty-five acres of filter-beds, and the maximum out of use at any time was about three acres. The pumping machinery was of a high-class and doing splendid duty, and there was adequate stand-by power. The tables furnished to the Commission showed that the average daily supply had increased 10,000,000 gallons a day in eleven years, but it was estimated that in the future the increase would be only 2,000,000 gallons a day in five years. The increase was now all in the Essex district. The average population per house in the London district was about 7.62; in the Essex district it was only 6·1. The company took the population, and divided it by the number of supplies, to get the average of each house or supply. The number of supplies in 1891 was 172,310. It was believed that 33 gallons per head per day was an excessive estimate for the next forty

years, because so much water was now wasted through the absolute carelessness of the poorer classes. Then immigrants washed their clothes by putting them under the tap, and letting the water run for two or three days. There were portions of the district in which the consumption was as high as 70 gallons per head per day. Thirty inspectors were employed in checking waste, and, while it was watched, the night line would be reduced, but it would rise again to the day line in the following week. The yearly increase in the number of supplies culminated in all London in 1885, and then it was checked with the decrease in jerry-building. It was most difficult to estimate what the population was at any particular time in such a district, because the population was so migratory, and one or two big strikes would reduce it very much. It was impossible to tell what the East-end of London would be like in a few years time, because a check must come to the increase of the population within the Metropolitan area. In West Ham the sites for new houses were limited, and if the population went further east, to Barking, it would be in the district of another water company. In wealthier districts the consumption per head was less than it was in poorer districts; and he had found it the same in Blackburn. In the Company's district there were 80,000 or 90,000 houses at a water rental of less than 15s., and that indicated that the rental was weekly. When a house got dirty the occupants would change into a clean one, and it was difficult to know how many were actually occupied at any given time. The witness was requested to furnish the Commission with a return of the number of gallons of water used per head per day, and to prepare it with a "keen appreciation of the importance which was attached to it." The pollution of the Lea from its traffic was infinitesimal, and the bulk of the traffic stopped below the Company's intakes. The two Companies pay an annual sum for securing the sanitary supervision of the river, and immediate attention to any reported pollution. The Conservancy have informed the Commission that there are thirteen sewage-treated towns above the East London intake, and sixteen towns—eight sewage and eight cesspool—above the intake of the New River. The witness said he knew only about Hertford and Cheshunt. In the latter case the effluent was now carried for several miles into the Company's intercepting drain, which discharges it some miles below the intakes. Hertford used a precipitation process, and the effluent flowed through a ditch to the Lea. No doubt, said the witness, the organic impurity in the East London water was greater than in the New River, for two reasons: first, their intake was in a better position; and, secondly, they had a greater admixture of well-water. The difference was about 50 per cent. on the average; and it was mainly due to the well-water. The present and the possible yield of the Company's wells and springs was the subject of many questions. In the Company's statement the daily average of water taken from wells and springs was set down at 3,681,000 gallons. Mr. Bryan now gave the quantities pumped from the wells as follows:—

	Gallons.
Waltham Abbey	800,000
Chingford	500,000
Walthamstow	400,000

The remainder, which would be nearly 2,000,000, he said, came from the springs at Hanworth. In the statement it was said that the existing wells would yield 11,000,000, and from other wells "some of which are being sunk," they could get 13,000,000. This statement elicited from the witness the story of the Hanworth springs, and led to important questions. At Hanworth, four miles past Hounslow, and two miles north of the Thames, there were gravel springs which yielded 2,000,000 gallons a day. It is lifted by centrifugal pumps, so it is difficult to say the exact amount. A trench around the filter beds was being puddled, on account of the pressure of land water. It was found to be a volume of good water. On Mr. Bryan's advice, tunnels were driven to collect it. It was a permanent supply. There was a bank of clay which held up an immense amount of water in a gravel bed of 70 or 80 square miles. The water was running on its way to the Thames. Pumping did not seem to have any effect upon it. The water flowed over the edge of the bank in four or five places. It was simply a small portion of the surplus that was taken. "Where does it come from?" was asked. From a large area which is permeable, and is little built upon. "Then, practically, it is surface water?" said the Chairman. Yes, it is. The water has been analysed several times, and the Local Government Board gave permission to use it four years ago. The following conversation ensued:—

The New River Company tell us they are pumping, on the average, 8,500,000 gallons a day. So it comes to 10,000,000 or 11,000,000 a day from the chalk wells. In your statement you say that from the Company's existing wells in the Lea valley you can get 11,000,000. That is about 9,000,000 more than you are taking now?—Yes.

And from other wells, "some of which are now being sunk," you think you can get 13,000,000?—We do.

Thus you propose to take 20,000,000 more than you are taking now?—Yes.

And the New River Company propose to take 23,500,000 more?—Yes.

So that the two propose to draw daily 44,000,000 more from the chalk than now?—Yes. From our present wells we have taken continuously 7,000,000 daily.

For how long?—Until the pumps gave out, for three or four months at a time. Some of it we pumped to waste and some we ran into our filter beds. From the Lea Bridge well we have pumped continuously for six months, and we have had as much as 3,500,000 a day passing to the last day.

During the construction of the well at Waltham Abbey there were complaints of depression in four public wells at Waltham Abbey and Cheshunt, but Mr. Bryan found the explanation to be that their pumps were out of order. In reply to further questions he said,—I think it is safe to assume that we and the New River can take 44,000,000 gallons more, because there is an immense volume of water running to waste in a south-easterly direction into the Thames, down towards Purfleet, Grays, and that neighbourhood. Our wells immediately fill up when we cease pumping. At Lea Bridge we have 6,000 ft. of tunnel, and as soon as we cease to pump the water fills the tunnels quickly, and, as soon at it reaches the shaft, it comes up the shaft at the rate of 40 ft. an hour. At Walthamstow the action is very rapid. At Waltham Abbey our pumps are drowned by about 140 ft. of water. We cannot reduce the level with our existing pumps to nearer than 128 ft. from the bottom of the well. It is difficult to make any estimate of what we are pumping when we have got workmen down below. On this the Chairman said, "And that makes it difficult for us to form an estimate of what you have really been doing." The following occurred in subsequent conversation:—

You have powers to sink wells beyond those you have exercised?—Yes.

What length of headings have you driven?—At Waltham Abbey about 600 ft.; at Walthamstow about 600 ft.; at Lea Bridge about 6,000 ft. At Lea Bridge we have driven headings at a very low level. The chalk was so hard it had to be blasted with dynamite. After driving 1,000 ft. and finding no water, we abandoned the lower heading, and came up 60 ft. higher. All complaints of our affecting previously existing wells have been groundless, and at present they are drawing all the water that is needed. Of the 910,000,000 gallons, 600,000,000 can be drawn off by gravitation.

Have you formed any idea what would be the effect of getting these 44,000,000 gallons extra from the chalk?—As far as my district is concerned, I do not see how it can affect the surrounding country. There is the London clay, which is a very compact mass, lying between the Thanet base and the surface, so that, whatever water comes from below, it cannot affect the surface close to our wells. I cannot see how the abstraction of any amount of water from the chalk underneath the London clay, so far as the London clay extends, can affect either the surface springs or the country generally.

I suppose there is a limit to the quantity to be got from the chalk?—I should think there is.

There must be a point at which you would begin to draw on the streams from the surface, must there not?—The streams have no connexion with the wells where the London clay is.

I am speaking of where you have the chalk?—We have not any chalk in our district; there is no outcrop of it in my Company's district. All down the valley, if you dig 2 ft. you come to the water from 2 ft. to 3 ft. in the gravel.

How are the wells lined?—We support them with cylinders 15 ft. in diameter at the surface. We seal these into the London clay, so as to absolutely exclude any water from the gravel.

With respect to the depletion of the Lea, the Chairman quoted a letter from the Conservancy to the Company on March 17, stating that there was difficulty in keeping the navigation below Old Ford up to a proper head, and that at Limehouse Cut the navigation had been stopped at times for want of water. The witness said that up as far as Chingford the Lea was always full. The Thames tides went into the Limehouse Cut, and left a considerable deposit of mud. The Conservancy had filled up a compensation reservoir, which had been constructed by the Company. The tide used to flow in and out, and thus the reservoir acted as a flushing tank, but the Conservancy had filled up the reservoir with dredgings. An extra 5,000,000 a day would be nothing in six or seven miles of river. Neither would it place the Company in difficulty, because they had always sufficient water in their storage reservoirs, and they had never objected to the Conservancy taking their full amount.

The witness further stated that the East London Company has secured excellent sites for more storage reservoirs. Turbid water is not taken. In flood and rainfall the intakes are shut down until the water is in good condition; and they have never been unable to fill up their reservoirs a few days after a flood.

Sir F. Bramwell said he had been consulted on these matters by the East London Company. He handed in a table prepared from the publications of Mr. Lass, which showed that from 1881 to 1890 the houses or supplies of the East London Company's district had increased from 130,086 to 167,989. He also produced another table giving corresponding figures for all the eight companies. The estimate of 33 gallons was, he thought, largely in excess of what it ought to be; including the trade supply of 6,000,000 or 7,000,000, the estimate ought to be from 25,000,000 to 27,000,000 at the utmost. The East London would do with this supply without stinting anybody if it had the same assistance from the local authorities as other companies had. The average price or cost of the East London Company's whole supply was 4·187d. per 1,000 gallons; and for the eight companies, including the East London, the figure was 7·116d. Where the customers acted with reasonable fairness, the constant supply system took the least water; and waste arose mainly from carelessness and indifference. The East London Company was peculiarly situated in its power to pump from the chalk large quantities of water running to the river or the sea. He could not conceive that any amount of pumping would ever affect places in the district,—Luton for example.

Professor W. Boyd Dawkins said he had made it his business to master in detail the geology of the district, and in particular the area of the chalk and the area of the London clay. The water which the East London Company obtained from wells, sunk mostly through the London clay, was obtained from the rainfall which came upon the chalk; and the area of the chalk in the Lea valley was about 275 miles, including outliers. On this area 1 in. of rainfall a year would give 11 million gallons a day; and there was a percolation of not less than 10 in. a year. The chalk was an enormous porous sponge, the upper half being more porous than the lower half, and the whole something like 400 ft. in thickness. The streams were on the surface of this mass, which was more or less saturated. At Mimms, south of Hertford, all the surface-water went through three or four swallow-holes bodily into the chalk, proving in that case the capacity of the chalk to take 20 square miles of surface drainage. The chalk was full of swallow-holes in which that sort of thing went on, and, therefore, 10 in. was a very moderate amount of percolation. To the east, in the valley of the Roding, the Company could intercept water on its way down to the line of the Thames, and so largely increase their supply. He had seen water passing from the chalk into the Thames, and he was fully persuaded there were vast masses finding their way through it, to say nothing of certain large isolated springs which came bodily into the Thames. These masses did not come through the London clay; they came through the

chalk. The surface of the chalk was extremely irregular, especially under London. He showed by a section from Sevenoaks to the line of the Thames the gradual descent of water from an altitude of 172 ft., and said it was the same on the other side of the river. There was a general lowering of level due to increased drainage, which might also diminish percolation; but that did not apply to wells in London that had been sinking a long time, because water could not get to them to compensate for what was taken out. That would not happen to the Company's wells, because they were nearer to the area of the exposed chalk, and the yield of these wells showed that there was certainly very much more water in the district than there was under London in the chalk. The Company had wells with a capacity of 4,000,000 to 5,000,000 gallons a day, but no well under London had produced much more than a fourth of that. This underground water certainly came from the surface of this area, and possibly adjoining areas. "Then," said the Chairman, "rainfall and percolation cannot be the bases of estimates." Pumping on a large scale would have some effect on the surface drainage, and probably on the streams; but the area was so extensive that a large amount of water might be taken without much danger to the surface.

Mr. Wm. Topley, F.R.S., F.G.S., said the water at the Lea Bridge well was largely derived from the tertiary sands, and this source of supply could be more largely utilised. If this water were not pumped it would go to feed the general supply in the upper part of the chalk under London, which found its way down to the Thames and flowed out along the Thames. The gravels of the Lea were in direct communication with the sands of the tertiary beds. He saw no reason why a large amount of water should not be drawn from the gravels of the Lea. All along there was gravel underneath and along the sides of the river, and whenever it was tapped it was water-logged. If any harm was done by taking that water it would be to the river lower down. What was done at Lea Bridge was a capital example of what could be done by developing old wells and making new ones in the Roding and Stort valleys. It was impossible to say what would or would not happen, but none of the existing wells were sufficiently near the outcrop to be a source of danger to the neighbours of the East London Company. There seemed to be something exceptional in the Lea valley in the large amount of water that could be drawn, and in the wells not affecting each other. Two wells in the Stort valley might, perhaps, yield 3,000,000 gallons between them. Of course, there must be a limit beyond which it would be unsafe to go, but he did not think the proposals of the Company would reach that limit.

Mr. J. H. Barnes, C.E., handed in tables showing the monthly flow of the Lea from 1880 to 1891 at Field's Weir, and, asked for the lowest, said it was twenty-one millions in September, 1891.

Mr. W. C. Young, consulting chemist to the Lea Conservancy, handed in analyses of water from the intakes made in 1884, 1886, and 1891, and said they showed a considerable diminution in organic pollution; but the Chairman, remarking that analyses taken at such an interval did not convey any idea to the mind, preferred to examine Mr. Young as the witness of the Conservancy rather than as the witness of the Company, and, therefore, deferred further questions until the case of the Conservancy is taken.

The Commission will resume its sittings on the 30th inst.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of this Council was held on Tuesday afternoon at Spring-gardens, the Chairman, Lord Rosebery, presiding.

The Water Question:—Mr. Dickinson, the Deputy-Chairman, reported that the Committee of the House of Commons which was considering the question had expreseed their willingness to pass the London Water Bill, provided it was limited to conferring powers to conduct inquiries and negotiations and to promote Bills in Parliament, and to pay all the necessary expenses thereof; but that they were not prepared to constitute as the Water authority either the Council or the Joint Committee of the Council and the City Corporation, as was proposed by the Bill. The effect of that decision was to give to the Council all the powers originally asked for by them, but to deny to the Corporation for the present year the representation sought by them on a Joint Statutory Committee. Under the circumstances, therefore, the Corporation's representives had asked to be permitted to consider what action should be taken, and the matter had consequently been adjourned, in order that they might decide whether or not they should insist upon the Bill being abandoned, or would proceed with its promotion in the altered form.*

Organisation of the Council's Work.—The Vice-Chairman (Mr. John Hutton) presented a long report by the Special Committee on Organisation and the methods of conducting the Council's business. The Committee made a number of detailed recommendations, the first of which was the creation of a new Committee, to be called the Establishment Committee. Other recommendations were as follows:—

"That, with respect to officers charged with technical or professional work under the control of a single Committee, and who are not heads of departments, all recommendations for their appointment shall be made direct to the Council by that Committee after consultation with the Deputy-Chairman.

That, with respect to officers charged with technical or professional work under the control of particular Committees, more than one in number, and who are not heads of departments, all recommendations for their appointment shall be made to the Council by such Committees jointly after consultation with the Deputy-Chairman.

In cases where the work of the officials is not confined to particular Committees, the question of appointment shall be dealt with by the Establishment Committee as a matter falling under the reference to them."

The recommendations were agreed to after some discussion, in the course of which Mr. Hutton strongly urged the necessity, in the interests of economy and efficiency of administration, no less than in the interest of the health of the Council's *employés*, of obtaining a site and erecting new and adequate municipal buildings. The central building in Spring-gardens was totally inadequate to the needs of the staff and its work, and it now had to be awkwardly and expensively supplemented by a number of scattered houses. The inconvenience of this scattering of the staff was very great. Another thing was that many of their *employés* were now working in rooms which were positively unhealthy.

The "Rate of Wages and Hours" Clause in Contracts.—The discussion of this question was resumed. As we have already informed our readers, Mr. John Burns raised the question by the following motion:—

"That all contractors be compelled to sign a declaration that they pay the trade union rates of wages and observe the hours of labour and conditions recognised by the London trade unions, and that the hours and wages be inserted in, and form part of, the contract by way of schedule, and that penalties be enforced for any breach of agreement."

To this Mr. Costelloe moved last week the following amendment:—After the first word "That" to insert the words "except as regards work intended by the Council to be done outside London."

Mr. Sydney Webb seconded this amendment, and, after a long discussion, the amendment was negatived by 73 to 32.

The further discussion of the matter was adjourned to a special meeting fixed for Friday afternoon, the 27th, at 3 p.m.

The Council adjourned at 7 o'clock.

COMPETITIONS.

HIGHER GRADE SCHOOL, WINCHESTER.—In this competition, we understand that the successful competitors are Messrs. Pink, Farrow, & Nisbett.

WILLESDEN FREE LIBRARY.—We are informed that the designs of Messrs. Newman & Newman, of London Bridge, have been selected in competition for the new free library to be built at Willesden-green.

BURSLEM BOARD SCHOOLS.—We understand that in the recent competition for new schools at Hill Top and Longport, for the Burslem School Board, the plans of Mr. A. R. Wood, of Tunstall, were adopted, and that he has been appointed to carry them out. The Longport school is intended for 400 boys and girls, and the Hill Top school for 400 boys, with rearrangement of the Board-room and Offices.

* At the sitting of the Parliamentary Committee on Wednesday, Mr. Littler, Q.C., on behalf of the London County Council, said that that body desired to proceed with the Bill in its altered form, which was subsequently ordered to be reported to the House for third reading.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

AT the meeting of this Association on Wednesday, May 18, Mr. J. W. Grover, F.S.A., in the chair, the progress of the arrangements for holding the Congress at Cardiff were detailed. Mr. Loftus Brock, F.S.A., exhibited a series of articles which had been found in recent years in various parts of London, in proof of the existence of a settlement on the site of the City in prehistoric times. The articles consist of bones split for the extraction of the marrow, bone spear-heads hacked into shape by flint implements, and pottery not worked on a wheel. The chairman produced an old Bible covered with embroidery in silver and colours, most probably the work of the nuns of Little Gidding. Mr. Wells reported the discovery of prehistoric remains which have been made in cutting a watercourse on the Wray Park estate, Maidenhead, on land which had once been a bog. At a depth of 7 ft. or 8 ft. the antlers of red deer, used as a pick, have been met with, together with a portion of a human skull, flint implements, and a stone axe, which, after having been cut and polished, had been repolished at a later date. Many hazel-nuts were also found, and cockle shells, the latter being refuse of food. The chairman spoke of a ford which appears to have existed at Maidenhead in Roman times, and probably for a period long anterior. Mr. Earle Way exhibited a small collection of Egyptian antiquities, the principal of which was a cone of a foundation deposit, with an inscription. A paper on "The Merchants' Marks of England" was then read by Mr. R. Davis. This was an exhaustive treatise, in which the rise of the use of merchants' marks was traced from early times to our own. Old Acts of Parliament were cited in which Merchants, 1420, were to make barrels with a sign; and others required Goldsmiths to have their marks while in action. Old documents were produced in which certain witnesses had affixed their marks, the latter being distinctive and not a common sign. Thumb marks from the actual thumb of the witness were also noticed. Arms and marks were sometimes used by the same individual when qualified to bear arms, and the instance of Wm. Canynge and some others were mentioned; while the shield of John Terry, 1524, in St. John's Church, Maddermarket, Norwich, bears his arms, those of the Mercers' Company, and his Merchants' mark. Many of these marks are based upon a cross, apparently in token of good faith. The paper was illustrated by drawings of over 500 examples from monumental crosses, documents, stained glass, and seals.

Correspondence.

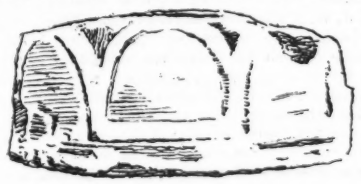
To the Editor of THE BUILDER.

ANCIENT FONT AT ST. ANDREW'S HOSPITAL, NORTHAMPTON.

SIR,—This font is of admirable workmanship, though now much worn by its 300 years of desecration and exposure. It was found in a midden immediately outside what I believe to have been the southern doorway of the ancient priory church, or chapel of the Augustinian Canons of St. Andrew's, of which the present St. Andrew's Hospital grounds, extra parochial, formed the country house. Their town house, famous as that in which Thomas A'Beckett, Archbishop of Canterbury, took refuge after the stormy scene with Henry II. in the castle, was situated near the river, upon the site of the London and North-Western railway-station, closely adjoining the castle hill.

The font is of late twelfth-century character, and of Barnacle stone. These quarries,—still discernible as "hills and hollows,"—so the local term for such ground runs, became exhausted towards the end of the thirteenth century. This is sufficient, even without the clear architectural evidence, to prove the antiquity of the object in question. It has, I am told, though this cannot well now be seen, as it serves as a flower-basket or stand, no drain. This proves it never to have been accommodated to the Protestant form of baptism. According to the Catholic rite, the water of baptism is blessed but once a year (on Holy Saturday), and a drain would have been sure to "weep" in that time. It is thus only necessary in Catholic churches to bale out the fonts once a year. In the Protestant rite the priest blesses the water at each baptism, and if a drain were not pro-

vided, it would be necessary to bale out the water at every christening. The absence of a drain thus proves this font, thrown out of the church into the midden (in which, three hundred years after, it was found) upon the dissolution of the priory by Henry VIII., and the desecration and ruin of the church which it once adorned, —never to have served for the Protestant rite. There further remain clear traces of the hinge and staple of a wooden cover for securely locking up the font, as is required by the Catholic rubrics to this day. Of the building



from which this font has been removed, *i.e.*, the Priory church of St. Andrew, considerable remains, as I believe, exist in the farm buildings lately in the occupation of Mr. J. Perkins, and now the property of the Hospital of St. Andrew. These appear to me of very early character, probably like the neighbouring churches of Earl's Barton and Brixworth, of pre-Conquestal date. The nave, aisles, and transept can be clearly traced, and only the quire or sanctuary, and part of the north-wall of the nave, have entirely disappeared. An hour's digging would recover at least the general plan of its eastern termination. GEO. GILBERT SCOTT, F.S.A.

The Student's Column.

WARMING BUILDINGS BY HOT WATER.

XXII.

COILS AND RADIATORS.

THE distinction between a Coil and a Radiator is not at all clearly defined, unless we rely upon the fact that the former usually has its pipes fixed horizontally and the latter vertically. At the same time, if we fixed a coil on one of its ends, as is done sometimes, it would scarcely constitute it a radiator. For the information of those who have not used these latter articles, it may be explained that they are, to all intents and purposes, coils, but with pipes of an ornamental character, always having the pipes fixed vertically; and, by ordinary decoration, they can be made of sufficiently good appearance to need no casing. They are also cast of such a section as to hold but little water, so that results are more rapidly obtained, but, of course, they just as rapidly cool as the fire goes down.

Radiators are practically the outcome of experiences gained with the ordinary horizontal pipe-coils. In the first place, these latter appliances are at the best of times ugly; this necessitates their being surrounded by a case, solely with the idea of hiding them, unless in an unimportant position. The case, however inexpensive, generally costs more than the coil; sometimes, when well-finished, four or five times as much. Then the case goes a good way towards neutralising the effects of the coil, as it will be understood that more heat is obtained from exposed pipes than those encased in any way. The coil case also introduces another bad feature by usually making it an impossible matter to dust and keep the pipes clean, and the horizontal pipes lend themselves to the collecting of dust more readily than vertical ones. The difference in heat diffusion between a clean pipe and one coated with dust is sufficient to surprise some people, but if it be remembered that dust is wholly composed of poor heat-conducting materials, as fibre, wool, cotton, grit (silica), &c., no wonder need be felt. Dust is almost as effective as silicate cotton in preventing the dispersion of heat.

The fact that horizontal pipes collect dust and vertical ones do not, has led to the general adoption of the latter arrangement with the tubes of radiators. Horizontal coils, in cases as just mentioned, are great sufferers in this respect, and so are pipes in channels, &c., and even exposed coils and pipes are sometimes allowed to get covered with dust, and the results are lessened accordingly.

With nearly all the present radiators the necessity of a case is supposed to be obviated by their being cast of a design equal in appearance to a casing itself, and if additional finish is needed, they can be fitted with marble tops. Nearly all the makers' lists show them also made in pedestal or columnar form as well as flat, and other shapes to meet different requirements. As regards appearance, they can always be picked out in two or more colours if desired, and it has been already explained that the ordinary decorative paints and colours have no prejudicial effect upon heat diffusion. Bronze powders and gold leaf are not however to be recommended, except to a very limited extent.

The last point in particular to be mentioned respecting radiators is that they hold but little water. By this is meant that a certain superficial area of radiating surface has less water in it than the same area of a round pipe. It can be seen that the less water an apparatus contains the quicker it will become heated up, and it is quite possible to get the same area of radiating or heat-giving surface (capable of furnishing the required temperature) by radiators with one-half or almost one-third the water that would be held if the radiating media

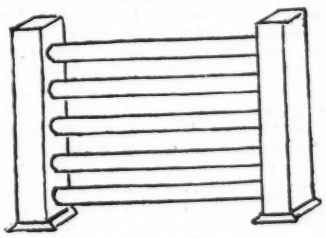


FIG. 90.

consisted of the ordinary 4-in. pipes. It is, however, necessary to again mention that, although the small amount of water is heated the quickest, it is also the quickest to become cool as the fire goes down. The small amount of water also shows any irregular stoking, as the degree of heat radiated is rendered irregular also; when the body of water is large, these effects are not noticeable, the water acts as a reservoir or medium for the storage of heat.

With glasshouse works the 4-in. pipe is decidedly the best; the results are rendered as equable as it is possible to get them. The same applies to any of those places where heat is required night and day regularly. When, however, quick results for just a matter of a few hours are needed, smaller pipes are used, as, for example, a 2-in. pipe, although so much less superficial surface of a 4-in. pipe, does not hold more than about a fourth of the water, and the results are quicker in proportion. Where quick results, and also good appearance, are needed, nothing can excel some of the forms of radiators.

The common form of coil is as fig. 90, being a pair of cast ends, with pipes inserted as

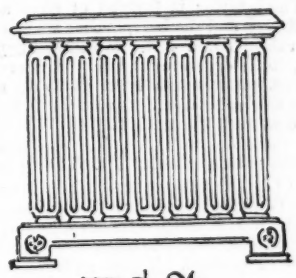


FIG. 91

shown. The joints between the pipes and box ends are either made with yarn and lead, or more commonly, perhaps, with borings (the rust joint). A good coil can be made up by using one of the different forms of patented joints, in which an india-rubber collar is the jointing material. These joints are not expensive, and the saving of time is considerable. They also have a good appearance, and are expansive (this will be referred to again). Space will not permit of giving details of all the different forms of radiators introduced; reference to the advertisement columns of this and other papers will furnish all the details required in this respect; but to illustrate the difference between the ordinary box-end coil just shown and the more modern appliances referred to, fig. 91 will make it plain what an improvement has been made.

There are several radiators made and arranged so that fresh air can be introduced and caused to pass over the heated surfaces and so be warmed. These are generally termed ventilating radiators, but they have no particularly active effect in causing ventilation. If outlet or exhaust ventilation exists (either by ventilating flues or the ordinary fire-place opening), then the inflowing fresh air will enter by way of these openings, and it will be warmed by contact with the hot surfaces.

There is one point in connection with these ventilating radiators that needs discussion, which is their effect upon the moistness of the air. This subject was dealt with somewhat fully when speaking of the necessary saturation of the atmosphere in glass houses, but it may be mentioned here that, when provision is made to increase the temperature of inflowing air we

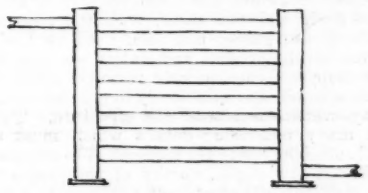


FIG. 92.

ought, at the same time, to provide for the increase of moisture that it needs and should have, in ratio with the heat it attains. This is provided for by some makers, who make the top castings of a trough-shape to hold water, with an ornamental cover over. The temperature air attains by contact with these pipes, however, is not so great as to demand this provision of moisture in every case; the engineer must use his judgment in this respect. In hot-air works, where air is heated by contact with stoves and flue-pipes, the moisture question is very important.

Amongst hot-water fitters there exists a considerable difference of opinion as to how coils,

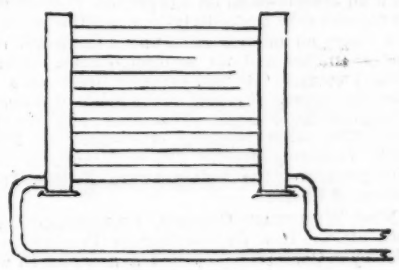


FIG. 93.

&c., should be connected; that is, at what point in the coil the pipes should be inserted. Many seek to get one pipe at the top and one at the bottom, as fig 92, but there is no occasion for this, if both pipes are connected at the bottom, the coil will heat just as effectivel It must not be supposed that because both pipes are at a low point the hot water will pass in and then out without the top portion of the coil getting hot. The coil will heat just as well as one pipe at the top and one at the bottom, which is supposed to possess the advantage of causing the water to circulate right through, as it certainly does. There is one advantage this latter method has, in the fact that if the top

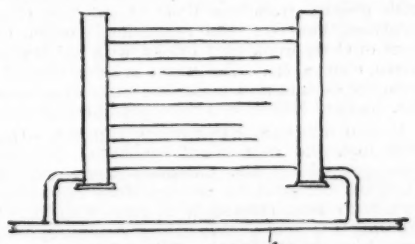


FIG. 94.

pipe is carried from the extreme top, probably no air-cock will be needed.

If a single coil or radiator is on a branch flow and return, the connexion may be made as fig. 93. If it should be one of a series on a branch service, then fig. 94 is a good method. This latter way gives all the radiators, from the first to the last, a chance of getting hot without much interval in their times of heating. If we had, say, four radiators, and caused the water to circulate through the first one before it had any opportunity of getting to the second, and through the second before affecting the third, we should cause very irregular results indeed.

Seeing what advantage radiators have under

certain conditions, it is to be expected that a hot-water pipe with full area of surface, but holding less water, will be introduced for those works needing rapid results. It would be a very simple matter and certainly useful in many cases where pipes have necessarily to be used, yet where heat is required at the shortest notice. It could be made of a section that would the least readily collect dust.

GENERAL BUILDING NEWS.

DUNBLANE CATHEDRAL.—During the past three years this cathedral has been undergoing a complete restoration, and will be re-opened,—it is hoped by the Queen,—in September next. The nave, as our readers are aware, has been roofless for about 250 years past, and the choir, with the chancel arch built up as a gable, has been used as the parish church till the present restoration was commenced. The choir was considerably restored about twenty years ago, but not sufficiently to prevent continuous decay which threatened the structure. There are still many unfinished details which must remain until sufficient funds are subscribed to complete the work. A new organ, worthy of the proportions of the restored cathedral, and enclosed in a fine oak case, is being built by Mr. Eustace Ingram, of London, and will be erected in a chamber on the north wall of the choir, over one of the side chapels. The whole cost of the work, exclusive of the organ, will be about 20,000*l*. The architect is Dr. Robertson, of Edinburgh.

VOLUNTEER DRILL HALLS, EXETER.—On the 23rd inst. the Duke of Cambridge opened the new drill halls which have been built for two of the branches of the Volunteer forces in Exeter. One of the buildings has been erected for the accommodation of the First Rifle Volunteers. It occupies the site of the old theatre in Bedford-circus and a portion of the city wall. The hall is 100 ft. long and 50 ft. wide, with a gallery at one end capable of accommodating 200 persons. In the basement under the hall there is a shooting-gallery 90 ft. long, a large armoury, and large store-room. On the west side of the building is an entrance hall and staircase, with an orderly-room on the ground floor 27 ft. by 18 ft., and over the orderly-room off the landing of the stairs an officers' room and a sergeants' room. A clerk's office and an adjutant's office adjoin the orderly-room. On the extreme west side is a dwelling-house. The roof of the hall is of slate, with a large centre skylight. The other roofs are of red tile. The other building is situated in Friar's-walk, Holloway-street. The architect was Mr. S. Wilkinson, and the builders were Messrs. Tree & Bolley, of Exeter.

NEW WESLEYAN CHURCH, LICHFIELD.—On the 20th ult. the Rev. Dr. Stephenson (President of the Wesleyan Conference) opened a new church which has been erected in Tamworth-street, Lichfield. The building has been constructed by Mr. Williams, of Tamworth, from the designs of Mr. Thomas Guest, architect, Birmingham. The new building will accommodate upwards of 300 people, and is to cost about 2,000*l*. It consists of nave, aisles, and chancel, two vestries, and an organ chamber. Stained glass has been introduced into the chancel windows.

EXTENSION OF PREMISES, BRISTOL.—Extensive additions are now in course of erection for Messrs. J. S. Fry & Sons, cocoa and chocolate makers. The new building has three frontages, that to Union-street being 55 ft.; Nelson-street, 125 ft.; and Little St. James' Back, 66 ft. A portion of the ground and first floors will be used as offices, the remainder of the building as a factory. In addition to a well-lit cellar, lined with white glazed brick, there are five floors, constructed with cast-iron girders and columns. The fronts up to the second floor are built with granite from the West of England Granite Quarries, Penryn; the remaining portion being built of Cattybrook buff bricks, with red Mansfield frieze, strings, &c. The whole is being carried out from the designs and under the superintendence of Mr. Richard Milverton Drake, architect, of Bristol.

BOARD SCHOOLS, KINGSWOOD, BRISTOL.—On the 20th inst. the new board schools at Kingswood were opened by Mr. Campbell-Bannerman, M.P. They are designed to accommodate 834 children, and have been erected at a cost of 8,000*l*. The building is a semi-Gothic gabled structure, occupying a frontage at Warmley-hill of 150 ft., or a total frontage to the main road of 175 ft. The inner construction of the schools is on the class-room system, each standard having a separate class-room allotted to it. They are divided into three divisions, for boys, girls, and infants, and around the exterior of the building play-yards are provided. The work has been carried out by Mr. J. Perrott, of Bristol, from designs by Mr. W. T. Bernard, also of Bristol.

NEW CHURCH, EDINBURGH.—On the 18th inst. the foundation-stone was laid of St. Cuthbert's new Parish Church, Edinburgh. The site, at the west end of Princes-street-gardens, and near the junction of Princes-street with Lothian-road, has, says the *Glasgow Herald*, been occupied for centuries by a succession of church buildings. The fabric which has recently been dismantled was erected about the middle of last century, and was mainly a parallelogram, measuring externally 98 ft. by 71 ft., while the new fabric has an internal length of 101 ft. and a width of 63 ft. Transeptal projections are formed on the north and south sides, and choir accommodation is afforded in the apse, 38 ft. deep and 33 ft. wide, forming an extension of the nave. The only part of the former church allowed to remain is the tower, the lower part of which will form a porch entrance from the west end, and leading from it will be a vestibule of about 66 ft. long by about 17 ft. wide. From this vestibule egress doors are also provided, and two staircases lead to the gallery above. In addition, there are two staircases at the east end leading to the galleries in the transepts, and doors of egress are also provided there and on the ground floor of the transepts. The eastern staircases are enclosed within tower projections, which are designed to be carried up above the roof to a height of 100 ft. in the form of campaniles. Externally the structure is designed in a phase of the Renaissance. The side façades are divided into a series of bays with square-headed and corniced windows on the ground-floor, the gallery level being defined by a cornice and string-course treatment, upon which rest the windows for the main lighting of the church. These windows are circular-headed, with archivolt moulding springing from panelled pilaster imposts. The transept projections are treated in a similar way, but with the windows grouped, and the upper part terminated in pediment form. The juncture of the roof with the wall-head is treated with ornamental cornice and parapet. At the east end, the apsidal treatment of the end of the church forms a feature, the main horizontal lines being continued from the main building. Its upper stage is divided by pilastered treatment in low relief, marking it into a series of bays, in each of which a moulded and corniced window supplies the lighting of the interior. The upper part of the apse is treated with panelled parapet-decorated cornice, and in semi-dome form the roof returns to the main gable line of the church, which is elevated in pediment form to receive it. The roof will be covered with lead, ribbed and panelled. The accommodation in the new church will be nearly equal to that in the church demolished, namely, about 2,000. The cost is estimated at between 18,000*l*. and 19,000*l*. The mason work is at present being carried out by Mr. White, builder, and the carpenters are Messrs. Beattie & Sons. Mr. Hippolyte Blanc, of Edinburgh, is the architect.

CONGREGATIONAL CHURCH, LAUGHARNE, CARMARTHENSHIRE.—On the 17th inst. the new Congregational Church at Laugharne was opened. The building is erected in the main street. The architects were Messrs. George Morgan & Son, Carmarthen, and the builder was Mr. James Rees, of St. Clears.

PUBLIC OFFICES, SLAITHWAITE, YORKSHIRE.—On the 19th inst. Mr. W. Varley laid the corner-stone of new offices intended for the use of the Slaithwaite Local Board. The buildings will form a block at the corner of Lewisham-road and Station-road, and are being erected from plans prepared by Mr. J. B. Eagland, architect, Slaithwaite.

NEW CHURCH, SMETHWICK.—On the 24th inst. the Lord Bishop of Lichfield consecrated the new Church of St. Michael's Mission at Smethwick. The church is situate in Crockett's-lane, adjoining the Central Board Schools. It is in the Early English style. The interior is formed of nave and aisles, with baptistry and double porches at the west end, chancel raised some 4 ft., morning chapel, north transept, and organ chamber. Underneath the chancel is a parish-room, 47 ft. by 35 ft., and also a vestry on the same level. The church will accommodate 650, and the cost, including 500*l*. for the site, has been 5,600*l*. Mr. H. Willcock was the builder, the architect being Mr. A. E. Street.

PARISH CHURCH, MORETON-IN-THE-MARSH.—The Bishop of Gloucester and Bristol has just re-opened this parish church after considerable improvement and enlargement, from the plans of Mr. E. H. Lingen Barker, of Hereford. Three galleries have been pulled down, the chancel has been extended 10 ft. eastwards, the south aisle 7 ft. southwards, and a chancel aisle added on the south side.

TECHNICAL AND FISHERY SCHOOL NEAR DUBLIN.—A technical and fishery school is about to be erected at Ringsend, near Dublin. The Earl of Pembroke has generously placed a sum of 4,000*l*. at the disposal of the Pembroke Township Commissioners to carry out the necessary works. The plans of Mr. W. Kaye-Parry, M.A., architect, of Dublin, have been selected in open competition for the proposed buildings, which will be commenced forthwith.

THE DECORATION OF THE LEEDS TOWN-HALL.—The Corporate Property Committee of the Leeds Corporation met yesterday, and considered a number of tenders sent in for the decoration of the Leeds Town-hall. A list of eight tenders was reduced to two,—namely, those of Messrs. Dobie & Sons, Edinburgh, and Mr. J. Boekbinder, London. These were with reference to the Victoria-hall and vestibule only. The Committee appointed a deputation to visit various buildings in other town which had been decorated by these firms, and to report. —*Leeds Mercury* (May 25).

SANITARY AND ENGINEERING NEWS.

SEWERAGE WORKS, KING'S NORTON.—On Friday, May 20, Mr. Rienzi Walton, M.Inst.C.E., one of the Engineering Inspectors of the Local Government Board, held an inquiry at King's Heath as to an application by the King's Norton Rural Sanitary Authority to borrow 10,500*l*. for works of sewerage and sewage disposal for the village of King's Norton and the surrounding district. The scheme, which was prepared by Mr. Robert Godfrey, A.M.Inst.C.E., the Engineer and Surveyor to the Authority, was fully set forth and explained by him to the Inspector, after which he was subjected to a severe cross-examination by Mr. Hugo Young, barrister, on behalf of several landowners and by Mr. J. S. Pritchett, barrister, on behalf of Messrs. Baldwin, the owners of Sherborne Mills. The scheme, which provides for deposition, filtration, and irrigation, was supported very fully by the evidence of Mr. E. Pritchard, M.Inst.C.E., and much of the opposition to it was based on the fear that it was the intention of the Authority to establish a "destructor" on part of the site. After a protracted inquiry, the inspector was driven round the district to be dealt with, and to the land proposed to be utilised as a sewage farm. The Inspector will make his report to the Local Government Board in due course.

FOREIGN AND COLONIAL.

FRANCE.—On Sunday the "Bourse du Travail" was opened. It has been built by M. Bouvard, and is situated in the Place de la République, at the corner of the Rue du Chateau d'Eau and Rue de Bondy.——The statue of Marshal Ney, which was erected on the very spot (in the Avenue de l'Observatoire) where the hero of Moskova was shot, is shortly to be taken down to make room for the extension of the line from Paris to Sceaux. The statue will be re-erected further on, in the Boulevard St. Michel.——The prizes for the open competition for the statue of Claude Chappe, inventor of the aërial telegraph, have been awarded. The first prize has been awarded to MM. Damé (sculptor) and Farcy (architect), and they are to execute the work. The second prize has been given to M. Boisseau, and the third to M. Pezieux. This monument is to be erected on the Boulevard St. Germain, near the Ministère de la Guerre.——The Archæological Society of Auteuil and Paris are going to erect busts and commemorative bas-reliefs which are to be placed on houses which have been inhabited by celebrities, such as Franklin, Victor Hugo, Boileau, Molière, Racine, &c. On the other hand, we hear that the house occupied by Lamartine, near the Trocadéro station, is likely to be demolished.——The museum of Carcassone has just been enriched by a magnificent portrait of the poet Joseph Chenier, and also several relics belonging to André Chenier, who was executed in 1793.——Madame la Duchesse d'Uzès, who is known in the artistic world under the name of "Manuela," has just given one of her works, a marble statue of the Virgin Mary, to the church of Poissy. This statue was inaugurated on May 19.——It is announced that the beautiful Château de Montrabech, near Lezignan (Aude) has been destroyed by fire, a great number of precious documents have been lost; a few works of art and some Gobelins tapestry was all that was rescued.——The artistic exhibition of Tours, which opened on May 19, is to close on August 31. That at Troyes, opened at the same time, is to be closed on June 30.——A National School of Agriculture is to be opened at Rennes.——The sculptor Rodin has been commissioned to erect the monument at Nancy to the memory of the painter Claude Gelée, called "Lorraine." It is to be unveiled on June 6. ——The Municipal Council of Rouen are erecting a statue of Gambetta in the place which bears the name of the famous orator. —— A discovery has been lately made at Rouen in the court-yard of the famous Hôtel de Bourgtheroulde; in demolishing a little construction which served as a porter's lodge, the sill of a window was brought to light, covered with sculptures, interesting both from an artistic and historical point of view. This decoration consists of an escutcheon, with bands and garlands of flowers supported by children, all in high-relief. The demolition of the little battlements has also revealed the existence of a gallery of half-timber work of the style of the sixteenth century, leaning on a low arcade, like those which are to be seen on the old houses in Rouen.——At Châlons-sur-Marne, some rare medals have been discovered, on one of which is the portrait of Posthumius, Emperor of the Gauls, who was assassinated in 267.——The artistic world at Havre has just lost one of its best painters, M. Lanfant, at the age of seventy-eight years.

BERLIN.—In a hall adjoining the premises occupied by the annual salon, there is an exhibition of the models sent in by sculptors for the competition which has been opened for the purpose of obtaining a suitable design for the Frederick Memorial Monument on the battle field at Wörth.——An enterprise has been started the object of which is to publish, in the cheapest possible form, the majority of all designs sent in for the numerous architectural competitions held annually in Germany. Each number of the publication appears as soon as

possible after a competition has been decided. Until now the only publications of competition drawings were the small woodcuts in our contemporaries or the very expensive lithographic folios of an architectural bookseller.

HAMBURG.—In connexion with the fiftieth anniversary of the rebuilding of Hamburg after the great fire of 1842, a description of the conflagration and work of reconstruction has been written by Herr Faulwasser, an architect. The total loss incurred by the fire was at the time estimated at 135,000,000 marks; the payment to firemen, 234,000 marks; and the clearing of the site and its waterways, about 690,000 marks. Although the fire retarded Hamburg's development for several years, it certainly was of a great benefit to the town, and caused it to have its present stately appearance and good bill of health.

MISCELLANEOUS.

SANITARY LEGISLATION A CAUSE OF OVERCROWDING IN CITIES.—Dr. G. V. Poore, in the concluding portion of his paper on "The Concentration of Population in Cities" (appearing in the *Lancet* of May 21) says:—"It needs to be pointed out that the overcrowding of our cities, which is admittedly the greatest of all sanitary evils, is the direct result of sanitary legislation. When, some forty years since, it was recognised that water-carried sewage inevitably poisoned the wells, no attempt was made to protect the wells from pollution; but the surface wells were compulsorily closed, the inhabitants were sold in bondage to the water companies, and the houses were compelled to pollute our rivers. These measures have given a fatal facility for overcrowding, and wherever a line of sewers is taken the speculative builder follows; for, not being hampered by questions of water-supply or filth disposal (the sanitary authorities relieving him of all responsibilities in this matter), he is able to erect buildings without any curtilage, and of any height, almost, that he chooses. Be it observed that this state of things is not limited to London or the big towns. The notion that houses are as well without curtilage as with it has infected the country, as anybody may see for himself when travelling by railway . . . . We have engendered a stingy habit of mind towards the question of space round houses, which almost amounts to a national insanity."

INFECTION BY TELEPHONE.—The possibility of infection by the use of the telephone mouthpiece by successive speakers has been hypothetically discussed before now. A Dundee correspondent brings forward some facts in support of the possibility of such an occurrence. Dr. Anderson, the Medical Officer of Health for Dundee, who has had the matter submitted to him, has given a very sensible answer, which sums up the position in a practical manner: "If a person who is suffering from sore throat of an infectious nature brings his mouth into close, or even near, relation to the mouthpiece of a telephone instrument, I think, in the act of speaking and expiration of air from the lungs and throat, it is possible that infectious particles might adhere to the instrument. I think an instrument which is so much exposed to the human breath should be frequently cleansed, whether the instrument be in a public or private room, and perhaps the simplest and most convenient cleanser is warm water and carbolic or Sanitas soap."—*British Medical Journal.*

PICTURES OF 1892.—The *Pall Mall Gazette* issues two books of reproductions from pictures of the year, one with prints in various tones of colour, the other in black. The latter, which seems to have been only a secondary issue when the first was out of print, is in some respects the best, as the tints used in the other edition are not all well chosen; some of the landscapes being printed in treated pinky tones very much at variance with our associations with the tones of natural scenery.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—It is announced that the next annual general meeting will be held at Edinburgh, commencing on Wednesday, August 3. The President-elect is Sir Archibald Geikie, LL.D., D.Sc., For. Sec. R.S., F.R.S.E., F.G.S., Director-General of the Geological Survey of the United Kingdom, Corresponding Member of the Institute of France.

PARQUETRY FOR HOSPITAL FLOORS. — The Sturge Ward of the London Temperance Hospital, Hampstead-road, which was opened by the Duchess of Westminster on the 11th inst., has been laid with Bassants' patent ½-in. parquet flooring 1,700 ft. of which were required. Mr. Bassant has likewise just received a contract for 7,000 ft. of his patent ½-in. teak parquet flooring for three wards and nurses' rooms at the East London Hospital.

RECONSTRUCTION OF BONAR BRIDGE VIADUCT, SUTHERLAND.—On the 20th inst. a special meeting to discuss the rebuilding of the fallen viaduct at Bonar Bridge was held at Ardgay, Ross-shire, by the joint committee of the Ross and Sutherland County Councils. Mr. Charles P. Hogg (of Messrs. Crouch & Hogg, civil engineers, Glasgow), submitted plans prepared by that firm, which were adopted. The new bridge will be composed of bow-string steel girded for three spans of 140 ft., 105 ft., and 70 ft. respectively, resting on masonwork at either end, and supported by stone piers in channel. There will thus be a clear waterway of 315 ft. instead of 260 ft., as formerly. The roadway will be 25 ft. wide, and will have a hardly perceptible gradient, but the approach from the Ross-shire side will have a gradient of 1 in 30.

THE CONVERSION OF GAUGE ON THE GREAT-WESTERN RAILWAY.—In connexion with this notable operation, which was accomplished at the end of last week, the *Engineer* of the 20th inst. gives some interesting particulars of the first broad-gauge train used by the public, which ran on July 4, 1838. Our contemporary also gives illustrations and descriptions of two of the early broad-gauge engines.

THE SANITARY INSTITUTE.—We hear that Sir Charles A. Cameron, F.R.C.S.I., D.P.H., Medical Officer of Health, Dublin, has accepted the Presidentship of the Congress of this Institute to be held at Portsmouth in September next.

DRAIN-PIPE TEST AT NOTTINGHAM.—In our report of the proceedings of the meeting of the Incorporated Association of Municipal and County Engineers at Nottingham, it should have been stated that the stoneware drain-pipes used in the new subways in that town (and of which we recorded a test on p. 381, *ante*) were manufactured by Messrs. John Knowles & Co. We were not informed of this at the time, or we should have mentioned it.

A NEW AUTOMATIC SELF-FLUSHING CLOSET.—Messrs. John Knowles & Co., of King's-road, St. Pancras, are now showing what they claim to be "the first and only double-action self-flushing water-closet." It is named the "Presto," and is a closet of the "wash-out" type, although the automatic arrangement can be applied to hopper or any other flush-out closets. By a simple method of gearing, the seat is slightly depressed when sat upon. Directly the person rises from the seat the closet is flushed. This is the first action. The second action is brought into play when the closet is used as a slop-sink or urinal. The seat is of course turned up for either of these purposes, inducing a preliminary flush, and the full flush is obtained by returning the seat to its normal position. The mechanism is exceedingly simple, and appears unlikely to get out of order, the flushing-cistern being discharged by means of a rod or chain connecting it with the seat-action.

CHISWICK LAND AND KENTISH TOWN FREEHOLDS.—Mr. Walter Hall, of Chancery-lane, offered to a crowded auction room on Wednesday last, at the Mart, City, about nine acres of freehold building land (together with a mansion thereon), having a long frontage to the "Duke's-avenue." The bids started at 10,000*l.*, and, by degrees, reached the sum of 13,500*l.*, at which they stood for some time, when the auctioneer stated that he exercised his discretion of buying in the property, as he could do better by private negotiation. The shop property at Kentish Town, with frontages to the main Highgate and Fortess roads, was eagerly competed for, and eight of the ten lots offered were sold, realising a total of 4,210*l.*

MEMORIAL WINDOW, MANCHESTER CATHEDRAL.—A new stained-glass window, in memory of three members of an old Manchester family,—the Grays, of Ancoats and Seedley,—has, says the *Manchester Courier*, just been erected in the library of Manchester Cathedral. The window is of four lights, and illustrates the text, "They found Him in the Temple, sitting in the midst of the doctors, both hearing and asking them questions." The work has been done by Messrs. Heaton, Butler, & Bayne, of London.

ARTISANS' DWELLINGS AT ESSEN.—In the course of some proceedings relating to the welfare of German artisans, some interesting information was given by Herr Krupp's representative. Herr Krupp had in 1891 rented dwellings situated in closest proximity to his works to no less than 3,659 of his workmen. The erection of these habitations cost him over 11,000,000 marks, and the ground about 1,200,000 marks. After deduction of all running expenses, such as repairs, &c., the money spent brought an income of about 2·1 per cent. Of some other 500 dwellings erected in outlying districts the income was 2·5 per cent. Owing to the special facilities offered, some seventy of the men already owned their houses.

LEGAL.

ALLEGED BREACH OF CONTRACT:

RICHARDSON *v.* MATHEWS.

THIS was an action tried in the Lambeth County-court, and brought by Mr. J. O. Richardson, builder and contractor, Peckham, against Mr. Mathews (of the firm of Ashton, Green, Mathews, & Co.), slate merchant, St. Mary Axe, to recover the sum of about 9*l.*, being the extra cost incurred by plaintiff in executing 145 squares of slating in consequence of an alleged breach of contract by the defendant. Mr. Robertson, barrister, appeared for the plaintiff, and Mr. T. Poulter, barrister (instructed by Messrs. Hunter & Downes), for the defendant.

Plaintiff's evidence was given at the sitting of the court on Tuesday, the 17th inst., when the case was adjourned until Tuesday last, when Mr. Mathews and other witnesses were heard for the defence. The claim was for extra cost incurred by the plaintiff (beyond the price quoted by the defendant) in executing the slating in question, and for the hire of tarpaulins, &c., rendered necessary by the alleged breach of contract by the defendant.

For the defence, it was contended that there was no contract.

It appeared that the plaintiff wrote to the defendant asking for a quotation for 145 squares of Penrhyn slating, no time being named for the execution of the work. The defendant offered to do the work at 22s. 3d. per square. The plaintiff wrote to the defendant on a Friday accepting that price, and requiring the defendant to commence the work on the following Monday. The defendant was unable to comply with that request, and said that three days was not sufficient and reasonable notice for a work of such magnitude; that they had not a sufficiency of the particular-sized slates required for the work in stock; and that it would take ten days or a fortnight to get them from the quarries.

Evidence was called by the defendants to show that it was unreasonable and unusual to expect work of the magnitude in question to be done at such short notice. The witnesses examined were Mr. C. W. Jones (the defendant's manager), Mr. S. R. Parker (a member of the firm of Patman & Fotheringham, builders), Mr. Alexander (a builder carrying on business in Bow-road), Mr. C. J. Devereux (manager for Messrs. Jarvis, builders, Hackney-road), and a member of the firm of Roberts, Adlard, & Co., slate merchants. These witnesses all deposed that it was the custom for builders, when about to tender for a work, to ask for quotations for certain materials from the merchants who dealt in those materials. The builder whose tender was accepted usually wrote at once to the merchant whose quotation best suited him, saying that he had obtained the contract and would probably want the material in about three, four, or six months, as the case might be. Within a week or two of the time arriving for roofing-in, it was usual to give the merchant another reminder, so that he might be fully prepared. The two or three days elapsing between Friday and Monday was not adequate notice for a work of the extent in question. The mere giving of a quotation by a merchant did not constitute a contract. Quotations of that kind were given by merchants every day.

Counsel for the parties having addressed the Judge, he immediately found for the defendant, with costs. He held that the defendant had not, in giving his quotation to the plaintiff for the work, entered into any contract, and therefore he had not committed any breach of contract.

CAPITAL AND LABOUR.

BRICKMAKERS' STRIKE IN WEST LONDON.—The strike of brickmakers in the Shepherd's-bush and Acton districts, which has now been in progress, we understand, for about seven weeks, still continues. The men ask for an increase of 9d. per thousand in the price paid for moulding, which, if granted, would, the masters say, entail an increase in the price paid for other processes involved in manufacture. The London Conciliation Board have endeavoured to bring both parties to an agreement, but without success. Two meetings have taken place at the London Chamber of Commerce, Botolph House, Eastcheap, at which representatives of the masters and men have met. The number of stools idle is about sixty. Therefore there must be between five and six hundred men and boys concerned. The Kent and Essex and the Cowley Brick-masters' Association have expressed their sympathy with the masters, and have, we are informed, entered into an arrangement with the Shepherd's-bush and Acton masters to make for them all bricks they require, so that the probabilities are that unless the strike very soon collapses, no bricks will be made in the strike districts this season.

MEETINGS.

MONDAY, MAY 30.

Royal Institute of British Architects.—Four papers on "Castings in Metal." (1) Mr. Alex. Graham, F.S.A., "On the Application of Metals to Architectural Design in all Countries." (2) Mr. C. Krall "On the Precious Metals." (3) Mr. H. Longden "On Castings in Iron and Brass." (4) Mr. Herbert Singer "On Castings in Bronze." 8 p.m.

Surveyors' Institution.—Annual General Meeting, to receive the Report of the Council, &c. 3 p.m.—Annual Dinner, Holborn Restaurant. 6.30 p.m.

TUESDAY, MAY 31.

Institution of Civil Engineers. — Annual General Meeting, to receive the Report of the Council and to elect the Council and Officers for the ensuing year. 8 p.m.

Society of Arts (Applied Art Section).—Mr. William De Morgan on "Lustre Ware." 8 p.m.

WEDNESDAY, JUNE 1.

Royal Archæological Institute.—(1) Rev. Precentor Venables on "A Roman Villa lately discovered at Lincoln." (2) Mr. C. E. Keyser on "Some Mural Paintings at Little Horwood Church, Bucks." 4 p.m.

British Archæological Association.—Mr. J. H. Macmichael on "The Greybeard." 8 p.m.

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premium.	Designs to be delivered.
*New Masonic Hall	Newcastle-upon-Tyne Central Masonic Hall Co. Ltd.	50*l.* 25*l.*	No date

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
*Wood Paving Works	Commrs. of Sewers	*Official*	May 31
Brick Gasholder Tank, Parkgate	Rawmarsh (Sheffield) Local Board	do.	do.
Various Buildings on Aberlour Estates, Balvenie, N.B.	John Alcock	.....	do.
Residence, Rubislaw, Den South, Aberdeen	.....	Matthews & Mackenzie	do.
Ten Cottages, New Tredegar	Powell Duffryn Colliery Co.	Aaron Davies & Son	do.
Work at Totnes Club, Totnes, Devon	Committee	.....	do.
Shop, Four Cottages, Warehouse, &c. Hopkinstown, Pontypridd	D. & W. Thomas	F. Gibson	June 1
Flagging and Asphalting	Halifax School Board	*Official*	do.
*Supply and Fixing Venetian Blinds	Met. Asylums Board	do.	do.
*Roadmaking and Paving Works	Hammersmith Vestry	H. Mair	do.
Infant School, Kaegarw, Mountain Ash, Glam.	Llanwonno Sch. Bd.	A. O. Evans	do.
Wards at Joint Hospital	Calverley (Bradford) Hospital	W. & J. B. Bailey	do.
Two Scrubbers, with Mains, Valves, &c.	Tynemouth Gas Co.	W. Hardie, Jun.	do.
Cast-iron Pipes (750 yards)	do.	do.	do.
*Alterations, &c. Northern Hospital	Met. Asylums Board	Pennington & Bridgen	June 2
*Painting and Repairs at Schools	St. George-in-the-East Guardians	Wilson, Son, & Aldwinckle	June 3
*Iron Escape Staircases at Workhouse	do.	do.	do.
Additions and Repairs to Manse, Aboyne, N.B.	.....	Matthews & Mackenzie	do.
Sixty Houses, Burnhope Colliery, Newcastle-on-Tyne	Utrick A. Ritson	J. W. Rounthwaite	do.
Additions to School, Kinellar, Aberdeen	J. J. Tindal	.....	do.
*Repairs and Drainage Works at Workhouse	Newhaven Union	W. A. Mole	do.
Pianoforte Shop and Warehouse, &c King's Cross, Halifax	.....	Raymond Berry	do.
*Sewerage Works	Wakefield U.R.S.A.	F. Massie	do.
Four Through Houses, Lightcliffe, Halifax	.....	Raymond Berry	June 4
Restoring Bacton Church, near Pontrilas Station, Hereford	J. G. Monro	Nicholson & Son	June 6
*Making-up Carriageway and Tarpaving Footways	Hendon Local Board	S. S. Grimley	do.
*Tar and Asphalte Paving	Tottenham Loc. Bd.	J. E. Worth	June 7
*Sewerage Works	do.	do.	do.
*Officer's House, Freshwater Gate (I.W.)	Admiralty	*Official*	do.
*Science and Art School	Gravesend Town Coun.	do.	do.
*Trial Boring, 200 ft. deep	East Cowes Local Bd.	Lemon & Blizard	do.
Thirty-three Houses, Merthyr Tydfil	Stewart Building Club	John Williams	do.
*Brick Sewers	St. Pancras Vestry	W. N. Blair	do.

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered
*Painting, &c. Works	Whitechapel Union	B. J. Capell	June 7
*Nurses' Rooms, &c.	do.	do.	do.
Wesleyan Chapel and School, Church Fenton	Rev. H. Field	F. W. Dixon	do.
*Making-up Roads	Fulham Vestry	W Sykes	June 8
*Erecting Cart Lodges in Board's Yard	Greenwich Bd. of Wks	*Official*	do.
*School Buildings, Horsham	The Governors	A. Vernon	June 9
*Works and Repairs, Plymouth District	War Department	*Official*	June 10
*Drainage Works, Castle Cary	Wincanton U.R.S.A.	E. Cousins	June 13
*Laying, &c., Cast-iron Pipes	Newark Corporation	H. Rofe	do.
*Covered Service Reservoir	do.	do.	do.
*School Building at Crossness	London County Council	*Official*	June 14
*170 tons Cast-iron Pipes	St. Anne's-on-Sea L.B.	H. Bancroft	do.
*New Sewer	Harrow Loc. Bd.	E. R. Capon	do.
*Painting, &c. Workhouse, Fulham-road	St. George's Union	H. Saxon Snell	do.
*Waterworks, Lockerley Hall, Hants	F. G. Dalgety, Esq.	Cyrus Combes & Parsons	do.
*Additional Exit at Workhouse	St. Saviour's Union	E. M. Whitaker	June 15
Cemetery Chapels, Entrance Lodge, &c. Ryecroft, Walsall	Walsall Corp.	*Official*	June 16
*Erection of an Office for the Board	Reading Sch. Bd.	C. Smith & Son	June 1
*Higher Grade Board School	Wolverhampton S. B.	T. H. Fleeming	June 18
Red Fir Telegraph Poles	G. P. O.	*Official*	June 24
*Additional Asylum Buildings, Banstead	London County Council Asylum Committee	G. T. Hine	do.
Improvements to Sligo Harbour	Harbour Commrs.	*Official*	June 2
*Malt Kiln, Store, &c Canterbury	Messrs. Flint & Sons	.....	July
*Making Roads, East Grinstead	East Court Estate	*Official*	No date
*Road Works, Constructing Stables	War Department	do.	do.
*Manufacture of Universal Bed Rest	Medical & Surgical Appliances Co. Lim.	.....	do.
Five Cottages, Hendrefodwg, near Cardiff	Mr. Thomas	.....	do.
New Church, Barry Dock	.....	Kempson & Fowler	do.
Restoration of Kingston Church, near Plymouth	.....	Edmund Sedding	do.
Chapel and School, Woodbourne-road, Attercliffe, Sheffield	.....	Alfred Appleby	do.
Alterations and Extension of the English Church, Dowlais, S. Wales	.....	E. A. Johnson	do.
Chancel, Vestries, &c. St. John's Church, Yeadon	.....	Messrs. Healey	do.
Two Vestries, &c. Schoolroom, Sheepbridge	United Methodist Free Church Society	.....	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Clerk of Works for Waterworks	Bishops Castle T. C.	.....	May 30
*Sanitary Inspector	St. Pancras Vestry	120*l.*	June 1
*Surveyor and Inspector of Nuisances	Cheshunt Loc. Bd.	250*l.*	June 7
*Assistant, Borough Engineer's Office	Stockton-on-Tees Corp.	150*l.*	do.
*Road Foreman	Islington Vestry	40*s.* weekly	June 9
*Geometrical Drawing and Estimating and Lecturer in Architecture	Royal Indian Engineering College	450*l.* &c.	No date

Those marked with an Asterisk (*) are advertised in this Number. *Competition*, p. iv. *Contracts*, pp. iv., vi., viii., ix., & xxv. *Public Appointments*, pp. xx. & xxi.

Builders' Foremen and Clerks of Works' Institution.—Ordinary meeting. 8.30 p.m.

THURSDAY, JUNE 2.

Society of Antiquaries.—8.30 p.m.

FRIDAY, JUNE 3.

Guild and School of Handicraft.—Mr. John Gamgee on "The relation of the skilled handicraftsman to physical discoveries." 8 p.m.

SATURDAY, JUNE 4.

Edinburgh Architectural Association.—Annual Excursion, Drumlanrig Castle.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

5,890.—BOLTS: *W. M. Trousdale and another.*—This patent relates to an improved bolt for lavatory and other doors. It is screwed on the inside of the door, the section of the bolt being cylindrical, and the end set off from the back plate to allow for a working joint having a conical corner, on the neck of which a pivotted drop piece works, having a collar fixed on it to prevent it coming off, the drop-piece being held in the vertical position by its own weight. There is on the boss of the drop-piece, at right angles to the knob, an arm acting as a locking-piece conjointly with the back plate, which has two elongated slot holes, one to lock the bolt when shot into the staple, the other to prevent it being shaken out of its position when not in use, the door being recessed to allow the arm to work freely in it. On the inside architrave of the door-frame a bolt staple is fixed, covering a lever, which works clear of the face of the architrave, and is made large enough to allow for the revolving movement, being shaped to suit the bolt, and elongated so as to admit the bolt if in course of time it should sag. When the door is closed the bolt comes in a straight line with the edge of a lever connected with an indicator, or otherwise, and above the centre, so that when the drop-piece is lifted the bolt may be shot into the staple. The drop-piece of the bolt, when released by the hand, will revolve downwards, and the arm on the boss of the drop-piece will revolve upwards, and lock itself in the elongated slot-hole on the lock-plate by its own weight, thus fastening itself so that it cannot be opened from the outside. The bolt may be easily withdrawn by lifting the pivotted drop-piece, and drawing into the former position. The bolt may be used with or without an indicator.

10,029.—DOOR PIVOTS: *B. Mädler.*—This invention relates to door pivots. In swing doors having rising pivots, it is needful to provide a device which enables a suitable adjustment of the two inclined sliding surfaces relatively to each other when the doors, in consequence of the greater wear of the one sliding surface, cease to have the desired amount of swing purchase, or when the proper position of the door is to be maintained as it closes. According to the specification this is effected by adapting the upper sleeve or socket which surrounds the pivot proper to be turned and to be fixed in the desired position. The lower sleeve or socket is immovably fixed in the pan, whilst the upper sleeve or socket has an arm placed in a recess formed in the lower edge of the door, and a part of which is bent upwards in order to fit it to the rear edge of the door. Through the medium of this arm, the upper sleeve or socket can be turned a little. In the upwardly bent part is formed a slot, which enables it to be displaced below the head of a screw in the adjustment. By tightening this screw, the arm, and, therefore, the upper sleeve or socket can be fixed in the desired position. The arm does not protrude at any point beyond the edge of the door, and the inner surface of its upwardly bent part and the corresponding surface of a piece of metal which receives the screw and is let into the door, have the axis of the pivot proper for their common centre.

1,736.—PLANES: *W. Beddows.*—This invention relates to improvements in side planes, or those planes which are known as "side-rabbets," and are employed for smoothing quirks, bevelled shoulders, and grooves in woodwork. The object of the invention is to so construct side-rabbeting planes that they shall be of the requisite thinness, and capable of smoothing the sides of very narrow grooves. Furthermore, that the irons or bits of such plane shall be retained in place in the stock, and yet be so arranged as to be capable of ready removal therefrom for the purpose of sharpening, and be of a shape suitable for sharpening. For this purpose the stock, which is made preferably of iron, steel, or gunmetal, is formed with a specially-contrived bed or groove extending obliquely from the upper part to the lower edge of the stock, inclining transversely from point to back, and canted laterally, the groove terminating in a mouth formed at the side of the stock, and which may be at any suitable angle to the bottom edge of the stock. Into the bed or groove thus formed the plane iron, which is slender, is received, and is retained in position by any suitable means, the cutting edge of the plane-iron being inclined at an angle to suit the inclination of the mouth. The planes can be made right or left handed.

13,824.—SLIDING DOORS: *H. Champness.*—This invention relates to improvements in the construction, and also in the fastening, of sliding or other doors. It consists essentially in so hanging a shutter as to cover the top or open half of the door by cords and weights, the cords passing over pulleys, and the weights sliding in casings fixed to the outside of the door. The fastening of the door is effected by means of a pawl actuated by a lever, a lock preventing the lever being raised. This lock also fastens the shutter.

NEW APPLICATIONS FOR LETTERS PATENT.

May 9.—8,777, J. Brittain, Grinding Cement, &c.—8,781, A. de Muralt, Spring-Bolt Door Locks.—8,783, A. de Muralt, Door Locks.

May 10.—8,790, B. Fowell, Boilers for Heating Public Buildings and Greenhouses.—8,795, G. Moeckel, Arches for Ceilings and Vaults.—8,811, A. Peterson, Window Fasteners.—8,825, E. Jones and Others, Sash Fasteners and Regulators.—8,826, W. Dielitzsch, Door-Check.—8 865, V. Lewes, Manufacture of Glass.—8,875, N. Brandt, Closets.—8,883, J. Gibbons, Sash-Lifts or Fasteners.

May 11.—8,889, F. Willis and R. Astley, Fireproof Floor and Stairs.—8,899, R. Wyatt, Water-Waste Preventer for Water-Closets, &c.—8,910, J. Longworth, Closing and Latching Doors.—8,936, J. Cronk, Window-Sashes and their Frames.

May 12.—8,985, Yates, Haywood, & Co., and the Rotherham Foundry Co., Limited, Adjustable Fire Grates.—9,016, S. Newton and J. Partington, Spring and Lever Door Hinge for Double and Single Doors.—9,052, G. Hall, Letter-Boxes for use on Private Dwellings.

May 13.—9,077, L. Cresswell, Fireplaces and Grates for Dwelling-houses.—9,093, W. Allen, Water and Burglar Proof Sash-fastener.—9,095, W. Allen, Hand Machine for rapidly Trimming Wall-papers, &c.—9,115, A. Boult, Skylights.—9,130, J. Milner, Water-closets.—9,142, A. Fyfe, Combined Building-block and Electric Insulation.

May 14.—9,154, W. Texhauer, Sliding Windows.—9,157, M. McNamara, Flushing-cisterns.—9,170, J. Woodcock, Syphon for Flushing tanks.—9,180, J. Thompson and R. Pollock, Central Ejector or Injector Ventilators.—9,191, T. Durrans, Nails.—9,193, H. Bracewell, Devices or Means for Retaining Windows or Doors in a more or less open position.—9,209, R. Astley, Construction of Fireproof Floors.

PROVISIONAL SPECIFICATIONS ACCEPTED.

3,896, W. Fox, Mitre Cutter or Trimmer.—4,878, W. Sterling, Sanitary and other Pipes and an Improved Method of Constructing Sewers and Drains.—5,863, D. Morrison, Taps.—6,229, J. Kerwood, System of Soil Pipe Ventilation.—6290, G. Asher, Window Fasteners.—6,571, W. Morrison, Roof Ventilators.—6,338, W. Ward & Son, Ltd., and W. Ward, Brick Making Machinery.—6,940, G. Hayes, Buildings, and Fire-proofing same.—6,950, S. Hellyer, Water-Closets.—6,956, J. Harris, Closet Fittings.—7,053, W. Wythe, Window Shades.—7,280, J. Simpson, Water Waste Closets.—7437, 7438, G. Gibson, Sash Locks.—7728, W. Johnson and J. Coultner, Tying Walls, Chimney Shafts and other Brick or similar Structures.—7,849, W. Reed, Malms Stock Bricks, &c.—7,973, J. Hamblett, Junior, Paving Bricks or Blocks.—8,021, G. Bray, Extension Ladders.—8,036, H. & H. Warrington, Bricks for Building Purposes.—8,076, T. Whitehead, Chimney Cowls and Extracting Ventilators.

COMPLETE SPECIFICATIONS ACCEPTED.

(*Open to Opposition for Two Months.*)

9,531, J. Giraud and J. Marini, Working Stones, Apparatus for shaping them into Cornices, or any other shape.—12,083, J. Hart-Davies, Blocks for Street or other Paving.—5,067, H. Angles, Imitation Faience Tiles, or the like.—5,624, A. Boult, Opening and Closing Windows.—7,225, D. Macdonald, Sash Locks.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

MAY 12.—By *Hards & Bradly*: A plot of freehold land, Barry-rd., Peckham, 250*l.*

MAY 14.—By *Rushworth & Stevens* (at Hastings): 6, Whiterock-gardens, Hastings, u.t. 85 yrs., g.r. 20*l.*, r. 90*l.*, 850*l.*

MAY 16.—By *J. & W. Johnson & Co.*: Nos. 182 and 184, Hackney-rd., f., 2,050*l.*—By *Ventom, Bull, & Cooper*: 270 and 270A, Belsize-rd., Kilburn, u.t. 81 yrs., g.r. 33*l.*, r. 92*l.*, 750*l.*—By *Mullett, Booker, & Co.*: 15, Lancaster-gate and stabling, Hyde-pk., f., 4,300*l.*; No. 46, Hyde-pk.-sq., u.t. 41 yrs., g.r. 20*l.*, 4,000*l.*; 28, Kensington-pk.-gardens, u.t. 36 yrs., no g.r., 1,050*l.*—By *Trafford & Dawson*: 208, Regent-st., profit rental of 120*l.*, u.t. 9 yrs., 860*l.*; 5 and 7, Seymour-st, Deptford, u.t. 52 yrs., g.r. 4*l.* 10*s.*, 385*l.*; 33 to 38, Strickland-st., u.t. 53 yrs., g.r. 8*l.* 8*s.*, 905*l.*—By *Ball, Norris, & Hadley*: Three plots of freehold land, Walpole-rd, Bromley, 495*l.*; 47, Chelsham-rd., Clapham, u.t. 70 yrs., g.r. 9*l.* 10*s.*, r. 70*l.*, 710*l.*—By *Ellgood & Fuller*: L.g.r. of 210*l.* 11*s.*, Burton-cres., u.t. 14 yrs., g.r. 15*l.*, 1,375*l.*—By *Fleuret, Sons, & Adams*: 1 to 4, Spotted Dog-cottages, Willesden-green, u.t. 87 yrs., g.r. 4*l*, r. 80*l.* 12*s.*, 400*l.*—By *M. Searle*: L.g.r. of 49*l.* 10*s.*, Pownall-rd., Dalston, u.t. 53 yrs., 660*l.*; l.g.r. of 34*l.* 5*s.*, Brougham-rd., u.t. 53 yrs., 460*l.*; f.g.r. of 50*l.*, Langton-rd., Camberwell, with reversion in 68 yrs., 1,180*l.*; 30 and 32, Neckinger-rd., Bermondsey, u.t. 20 yrs., g.r. 7*l.* 10*s.*, r. 57*l.* 4*s.*, 210*l.*; 85 and 107, Abbey-st., f., r. 52*l.*, 700*l.*; 57, Maltby-st., f., r. 55*l.*; 1,400*l.*; 134, 136, and 138, Abbey-st., f., r. 97*l.*, 1,310*l.*

MAY 17.—By *Eastman Bros.*: 10, Priory-villas, Sydenham, u.t 88 yrs., g.r. 11*l.*, r. 65*l.*, 800*l.*—By *Debenham*,

Tewson, & Co.: "The Lodge," 40, Gibson's-hill, Norwood, and 3a. 0r. 22p., f., 3,500*l.*; freehold house and stabling, London-st., Kingston-on-Thames, r. 70*l.*, 1,400*l.* —By *Chinnock, Galsworthy, & Co.*: 5 and 6, Albert-pl., Kensington, f., r. 154*l.*, 2,700*l.*; 228, Regent st., u.t. 28 yrs., g.r. 96*l.*, 13s. 6d., r. 280*l.*, 6,800*l.*; 7, Swallow-pl., Oxford-st., u.t. 25 yrs., g.r. 4*l.* 4s., r. 105*l.*, 2,020*l.*—By *Lound & Howitt*: 10 and 11, Park-pl., St. James's, f.; "The Pk. Hotel," f., r. 440*l.*, 10,000*l.*—By *Dowsett & Co.*: "St. Boniface House," Ventnor, Isle of Wight, and 3a. 1r. 7p., f., 4,000*l.*—By *Weston & Sons*: 6, Balham Cb.-ter., Balham, f., r. 85*l.*, 1,200*l.*; 44, Sydney-rd., Stockwell, u.t. 50 yrs., g.r. 5*l.* 5s., r. 34*l.*, 250*l.*; 19, 23, 25, Knatchbull-rd., Camberwell, u.t. 83 yrs,, g.r. 18*l.*, r. 124*l.*, 1,300*l.*

MAY 18.—By *J. Baker & Sons*: Seven cottages and a plot of land, Edgware, f., 1,020*l.*—By *R. A. Enright*: 43, Grovedale-rd, Holloway, u.t. 81 yrs, g.r. 5*l.*, r. 28*l.*, 205*l.*—By *Horne, Son, & Everyfield*: l.g.r. of 80*l.*, Leinster-sq., Bayswater, u.t. 60 yrs., g.r. 2*l.*, 1,670*l.*; l.g.r. of 72*l.*, Princes-sq., u.t. 60 yrs., g.r. 2*l.*, 1,550*l.*; l.g.r. of 188*l.*, Edward-st., St. Pancras, u.t. 29 yrs., g.r. 22*l.*, 2,230*l.*; 10, Manor-pk.-rd., Finchley, u.t. 88 yrs., g.r. 6*l.*, r. 19*l.*, 70*l.*—By *T. B. Westacott*: 4 and 6, Hampden-rd., Holloway, f., r. 52*l.*, 640*l.*—By *J. Hibbard & Sons*: 45, Mildmay-pk., Stoke Newington, u.t. 59 yrs., g.r. 8*l.*, r. 48*l.*, 540*l.*; 19, Statham-grove Villas, u.t. 82 yrs., g.r. 6*l.* 10s., 295*l.*; 41, Digby-rd., u.t. 83 yrs., g.r. 7*l.*, r. 36*l.*, 355*l.*; 20, Pyrland-rd., Canonbury, u.t. 58 yrs., g.r. 8*l.* 8s., r. 50*l.*, 500*l.*; 42, Mayville-st., Islington, u.t. 69 yrs., g.r. 5*l.*, r. 21*l.*, 195*l.*—By *Glover & Harrison*: 28 to 34 even, East-rd., West Ham, f.r. 100*l.*, 1,000*l.*; "Woodford Villa," Ripon-rd., Plumstead, f.r. 32*l.*, 525*l.*—By *Rushworth & Stevens*: 2 and 3, Clare Villa, Merton, f.r. 46*l.* 16s., 285*l.*; 11, Woodville-cres., Harrow-rd., u.t. 71 yrs., g.r. 7*l.* 10s., r. 42*l.*, 320*l.*; 87 to 93 odd, Weedington-rd., Kentish Town, u.t. 67 yrs., g.r. 25*l.* 4s., r. 136*l.*, 1,040*l.*; 96 and 100, Carlton-rd., u.t. 58 yrs., g.r. 12*l.*, r. 68*l.*, 520*l.*; 45 and 47, Parchmore-rd., Thornton Heath, u.t. 72 yrs., g.r. 16*l.*, r. 64*l.*, 500*l.*—By *D. Young*: 35, Guildford-rd., Lambeth, u.t. 50 yrs, g.r. 10*l.*, 1,000*l.*; 23, Keplar-rd., Brixton, u.t. 77 yrs, g.r. 6*l.* 10s., r. 30*l.*, 260*l.*; 33, 35, and 37, Keplar-rd., u.t. 77 yrs., g.r. 19*l.* 10s., r. 90*l.*, 780*l.* —By *Walford & Wilshin*: "Claremont," "Dorset Villa," and an unnamed Villa, Addington-grove, Sydenham, f., 1,370*l.*; "Silverbirch" and "Maude" Villas, f., r. 62*l.*, 650*l.*; 75 and 77, Catford-hill, Catford, u.t. 71 yrs., g.r. 10*l.*, r. 42*l.*; and a l g.r. of 5*l.*, same term, 380*l.*

MAY 19.—By *D. Watney & Sons*: No. 257, Edgware-rd., f., r. 57*l.*, 2,000*l.*; 261, Edgware-rd., f., r. 80*l.*, 2,600*l.*; 61 to 69 (odd), Defoe-rd., Tooting, u.t. 86 yrs., g.r. 25*l.*, 600*l.*; 6, Church-ter., f., 320*l.*; 1 and 2, Sidney-villas, f., 630*l.*; Brightwell-cres., a plot of f. land, 135*l.*—By *King & Chasemore*: "Lutwicke," Slinfold, Sussex, and 61a. 0r. 1p., f., 2,700*l.*; "Battles," and 30a. 1r. 22p., f., 1,125*l.*; "Little Slifehurst Farm," Kirdford, and 56a. 2r. 8p., f., 600*l.*—By *C. C. & T. Moore*: 6, Westbury-villas, Forest-gate, long leasehold, g.r. 4*l.* 10s., 370*l.*; 20 and 22, Shap-st., Kingsland, u.t. 11 yrs., g.r. 3*l.* 13s., 200*l.*; 36, How-st., u.t. 13 yrs, g.r. 2*l.*, 100*l.*; 23, How-st., u.t. 37 yrs., g.r. 2*l.* 5s., 165*l.*—By *Bray, Young, & Co.*: 30, 32, and 34, Auckland-rd., Clapham, f., r. 94*l.*, 905*l.*; 25, Charles-st., Portland Town, u.t. 36 yrs., g.r. 8*l.*, r. 32*l.*, 225*l.*; 55, York-st., Bryanstone-sq., u.t. 15 yrs., g.r. 10*l.* 10s., 380*l.*—By *Rogers & Temple*: 11, St. Mildred's-rd., Westgate-on-Sea, f., r. 95*l.*, 1,480*l.*—By *H. J. Bliss & Sons*: "Laurel Cottage," in High-st., Fleet, Hants, f., 360*l.*; 21, 22, 23, and 24, Ma ian-st., Hackney, u.t. 58 yrs., g.r. 5*l.*, 830*l.*; 17 and 19, Ashwell-rd., Bethnal-green, u.t. 65 yrs., g.r. 6*l* 6s., 63*l.*; 16 and 18, Wennington-rd., u.t. 65 yrs., g.r. 5*l.*, 460*l.*; 9 to 15 odd, Chisenhale-rd., Old Ford; and 78 and 80, Sewardstone-rd., Bethnal-green, sold before auction.—By *Newbon & Co.*: 70 and 71, Roman-rd., Barnsbury, u.t. 66 yrs., g.r. 12*l.*, r. 64*l.*, 610*l.*; 78, Barnsbury-rd., u.t. 25 yrs., g.r. 5*l.*, r. 46*l.*, 295*l.*; 3, 4, 19, 20, and 22, Alwyne-sq., Canonbury, u t. 44 yrs., g.r. 57*l.* 10s., r. 307*l.* 10s., 1,800*l.*; 12, Kempsford-gardens, Kensington, u.t. 74 yrs., g.r. 6*l.*, r. 50*l.*, 525*l.*; 17, Haselrigge-rd., Clapham, u.t. 70 yrs., g.r. 5*l.* 10s., r. 34*l.*; 308, Balham High-rd., Balham, u.t. 50 yrs., g.r. 5*l.* 5s., r. 36*l.*; and four plots of freehold land, Hereward-rd., Tooting, 1 lot, 600*l.*—By *Stimson & Sons*: 14, Carson-rd., Dulwich, f., 800*l.*; 76 to 82 (even), and 96 to 102 (even), Kimberley-rd., Peckham, u.t. 81 yrs., g.r. 36*l.* 16s., 1,440*l.*; 25, 27, 65, to 72, 74, and 76, Barset-rd., u.t. 83 yrs., g.r. 54*l.*, 1,45.*l.*; 54, Longton-grove, Sydenham, u.t. 59 yrs., no g r., r. 72*l.* 10s., 500*l.*; 13 to 16, High Cross-ter., Tottenham, u.t. 85 yrs., g.r. 19*l.* 10s., 440*l.*; 69 to 75 (odd), 111 and 113, Wellbourne-rd., u t. 15 yrs., g.r. 27*l.*, 690*l.*; 60, 61, 62, and 64, Walcot-sq., Kennington, u.t. 15 yrs., g.r. 42*l.*, 410*l.*; 31 to 34, Edward-st., Bermondsey, f., 710*l.*; 353 to 361 (odd), Southwark-pk.-rd., u.t. 40 yrs., g.r. 16*l.*, 1,010*l.*; 1 to 33 (odd), Litlington-st., u.t. 50 yrs., g.r. 66*l.* 3s., 1.390*l.*; 20 and 28, Litlington-st., u.t. 39 yrs., g.r. 9*l.*, 225*l.*; 1 to 7 (odd), Clare Hall-pl., and a g.r. of 5*l.*, u.t. 39 yrs., g.r. 25*l.*, 350*l.*; 2 and 4, Clare Hall-pl., u.t. 39 yrs., g.r. 9*l.*, 190*l.*; 299 and 301, Rotherhithe New-rd., u t. 40 yrs., g.r. 1*l.*, r. 40*l.*, 310*l.*—By *A. Robertson*: 101 and 103, East Surrey-grove, Peckham, f., r. 46*l.* 16s., 485*l.*; 111 and 113, Camden-grove North, f., r. 54*l.* 12s., 565*l.*; 22, 24, and 26, Mann-st., Walworth, u.t. 59 yrs., g.r. 9*l.*, 835*l.*; 29, Mann-st., u.t. 60 yrs., g.r. 4*l.* 5s., r. 41*l.* 12s., 250*l.*; 205, Hill-st., u.t. 58 yrs, g r. 4*l.* 10s., r. 36*l.* 8s., 260*l.*; 8 and 32, Belvedere-rd., Lambeth, u.t. 31 yrs., g.r. 15*l.*, r. 64*l.*, 495*l.*—By *Hards & Bradly* (at Deptford): 4 to 7, Payne-st., Deptford, f., 705*l.*

MAY 20—By *Messrs. Aldridge*: 21 and 23, Livingstone-rd., Thornton Heath, u.t. 89 yrs., g.r. 8*l.*, 165*l.*—By *H. Gibson*: Twenty-one freehold cottages in Half-moon-yd., St. Albans, 515*l.*—By *Curtis, Rogers, & Co*: l.g r. of 30*l.*, Lennox-villas, Willesden, u.t. 82 yrs., 520*l.*; l.g.r. of 45*l.*, Nicosia-rd., Wandsworth Common, u.t. 87 yrs., g.r. 2*l.*, 850*l.*—By *Foster & Cranfield*: The Residence, "Beaulieu" Winchmore Hill, and 10a. 1r. 25p., 6,800*l.*; The freehold residence "Elmhurst," Byculiah-rd., Enfield, 1,310*l.*—By *Reynolds & Eason*: 137, 139, and 141, Jubilee-st., Mile End, u.t. 8 yrs., g r. 7*l.* 10s., 120*l.*; 157, Jubilee-st., u.t. 8 yrs., g.r. 2*l.* 5s., 65*l.*; 37, 38, and 39, De Beauvoir-sq., Kingsland, u.t. 27 yrs., g.r. 13*l.* 18s., r. 101*l.*, 510*l.*; 40 to 46, De Beauvoir-sq., u.t. 26 yrs., g.r. 35*l.*, r. 239*l.*, 1,200*l.*; 53 to 61 odd, St. Peter's-st., Mile-end, u.t. 37 yrs., g.r. 15*l.*, r. 160*l.*, 1,275*l.*; 15, St. Peter's-rd., u.t. 38 yrs., g.r. 3*l.* 6s., r. 42*l.*, 345*l.*; 9 to 19 odd, Chicksand-st., Whitechapel, and 19, 21, and 23, Spelman-st., u.t. 45 yrs., g.r. 31*l.* 10s., r. 318*l.* 10s., 1,880*l.*; 3, 4, and 5, Hutchinson's-av., Aldgate, f.r. 97*l.* 10s.-990*l.* By *Baker & Sons*: "The Limes," Grafton-rd., Harrow, f.r. 90*l.*, 740*l.*; 1 to 7, Queen's-ter., f., 550*l.*; three copyhold cottages, Crown-st., 180*l.*; a detached house in Greenford-rd., r. 19*l.* 10s., 210*l.*; "Wolsey House," High-st., copyhold, 1,900*l.*; three plots of freehold land, "Mount-pk. Estate," 615*l.*; freehold land, 5 a., Mundesley-on-Sea, 340*l.*

[*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rents; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.

Greenheart, B.G. ton	9/0/0	9/0/0
Teak, E.I... load	9 10/0	15/0/0
Sequoia, U.S.ft.cu.	2/3	3/0
Ash, Canada load	2/10/0	4/0/0
Birch, do.	3/5/0	4/10/0
Elm, do.	3/10/0	4/15/0
Fir, Dantzic, &c.	1/10/0	3/10/0
Oak, do.	3/0/0	5/5/0
Canada.....	5/10/0	7/0/0
Pine, Canada red	2/10/0	3/10/0
Do, yellow	2/10/0	5/0/0
Lath, D'ntzic, fath	5/0/0	6/0/0
St. Petersburg	5/0/0	7/0/0
Deals, Finland, 2nd & 1st std 100	8/0/0	9/10/0
Do, 4th & 3rd..	7/0/0	8/0/0
Do. Riga	7 0/0	8/0/0
St. Petersburg, 1st yellow ..	11/0/0	14/10/0
Do. 2nd yellow	8/0/0	10/0/0
Do. white	7/10/0	10/10/0
Swedish	7/10/0	15/10/0
White Sea	8/0/0	17/10/0
Canada, Pine 1st	20/0/0	26/0/0
Do. do. 2nd....	14/10/0	16/0/0
Do. do. 3rd, &c.	8/0/0	10/5/0
Do. Spruce. 1st	8/10/0	11/0/0
Do. do. 3rd & 2nd.....	6/15/0	8/0/0
New Brunswick	7/0/0	7/10/0
Battens, all kinds	3/10/0	18/10/0
Flooring Boards, sq., 1 in. prep. 1st	0/8/0	0/14/0
Do. 2nd.....	0/7/0	0/11/0
Other qualities	0/3/6	9/7/6
Cedar, Cuba ..ft.	/3½	/4½
Honduras, &c.	/3½	/4
Mahogany, Cuba.	/4½	/6½
St. Domingo, cargo av	/4½	2/0
Mexican do. do	/4	/5
Tobasco do. do	/5½	/7
Honduras do..	/5½	/6½
Box, Turkey ton	4/0/0	13/0/0
Rose, Rio.....	10/0/0	20/0/0
Bahia	9/0/0	18/0/0
Satin, St. Domingo ....ft.	0/0 8	0/1/8
Satin, Porto Rico	0/0/8	0/1/6
Walnut, Italian..	0/0/3½	0/0/7

METALS.

IRON—Pig, in Scotland .....ton	2/0,9	0/0/0
Bar, Welsh, in London.....	5/17/6	6/0/0
Do. do. at works in Wales	5/7/6	5/10/0
Do. Staffordshire, in London	6/5/0	6/15/0
COPPER—British, cake and ingot	48/10/0	50/0/0
Best selected ..	51/0/0	51/10/0
Sheets, strong..	58/0/0	59/0/0
Chili, bars	46/12 6	47/0 0
YELLOW METAL lb.	0/0/5½	0/0/5¾
LEAD—Pig, Spanish ....ton	10/11/3	10/13 9
English, com. brands	10/12/6	10/15/0
Sheet, English, 3 lbs. per sq. ft. and upwards ..	12 0/0	0/0/0
Pipe	12/10/0	0/0/0
ZINC—English sheet .....ton	25/15/0	26/0/0
Vieille Montagne.....	26/5/0	0/0/0
TIN—Straits	97/15/0	98 5/0
Australian	97/15/0	98 5/0
English Ingots	99/0/0	99 10/0

OILS.

Linseed .....ton	18/0/0	18/5,0
Cocoanut, Cochin	24/0/0	0/0/0
Do. Ceylon	22/0/0	0 0/0
Palm, Lagos	22/5/0	22/10/0
Rapeseed, English pale	25/10/0	0 0/0
Do. brown	23/10/0	0/0,0
Cottonseed ref...	19/0/0	0/0,0
Oleine	21/10/0	22/10/0
Lubricating, U.S.	4/0/0	5/0/0
Do. refined	6 0,0	12 10/0
TAR—Stockholm barrel	0/19/0	1/0/0
Archangel	0/12/6	0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 12 *noon on Thursdays.*]

ABERGAVENNY.—Accepted for the construction of a chapel, entrance gates, boundary wall, &c., at the new cemetery, for the Burial Board. Mr. E. A. Johnson, architect, Abergavenny. Quantities by architect:—

J. D. Williams, Knighton £1,523 10 0

BOURNEMOUTH.—Accepted for erecting the "Granville" Temperance Hotel, corner of Yelverton-road and Richmond-hill, Bournemouth, for Messrs. Colman and others. Messrs. Lawson & Donkin, architects and surveyors, Bournemouth. Quantities supplied:—

T. H. Kingerlee, Oxford..... £7,467 0 0

[For full list, see last week's *Builder*, p. 409.]

CRAWLEY (Sussex).—For the erection of a new church at Ifield, Crawley, Sussex. Mr. W. Hilton Nash, architect, 5, Adelaide-place, London Bridge, E.C.:—

Norman	£3,298	P. Peters	£2,167
Row and Bros.....	2,474	Cook & Sons, Crawley*....	2,159

* Accepted.

CREDITON (Devon).—For a pair of labourers' cottages, for General Sir Reivers Buller, C.B., V.C. Mr. J. Widgery, architect, Downes Estate, Crediton:—

Dart, Crediton (accepted)	£445	W. Berry	£440

EASTLEIGH.—For the erection of infants' school, offices, and boundary-wall, Cranbury-road Eastleigh, for the South Stoneham School Board. Messrs. W. H. Mitchell, Son, & Gutteridge, architects, Southampton:—

T. H. Kingerlee	£2,994 0 0	Crook & Son.....	£2,687 0 0
W. R & C. Light ..	2,857 0 0	W. C. Mears	2,658 12 0
W. Franklin.....	2 806 6 5	Morgan, Isted, & Morgan, Southampton*.....	2,634 0 0
H. Stevens & Co.....	2,780 0 0		
J. Nichols, Exors. of	2,748 0 0		

* Accepted subject to confirmation by the Educational Department.

EAST MOLESEY.—For the erection of a pair of cottages at Summer-road, East Molesey, Surrey, for Mr F. W. Last. Mr. Walter J. Ribbetts, architect Savoy House, 115, Strand, W.C.:—

Wheatley & Son	£510	Pettitt	£437
Potterton	508		

EDINBURGH.—For 750 tons of dry sand, cast-iron pipes, and special castings, for the Edinburgh and District Water Trustees. Messrs. J. & A. Leslie & Reid, C.E., 72a, George-street, Edinburgh:—

D. Y. Stewart & Co. .	£3,390 16 1?	R. Maclaren & Co...	£3,438 1 2
Macfarlane, Strang, & Co.	3,489 6 3	R. Laidlaw & Son, Glasgow*	3,442 16 11
Cochrane, Grove, & Co.	3,460 12 7		

* Accepted.

For Laying and Jointing Foregoing.

Henderson & Duncan	£1,858 14 1	John McKnight & Son	£3,316 6 0
R. B. Steuart	4,576 4 0	James Young & Sons, Edinburgh*	3,294 0 0
John Best	3,869 13 10		

* Accepted.

FAREHAM (Hants.).—For erecting the new Capital and Counties Bank, Fareham. Mr. W. Wallace, architect, 27a, Old Bond-street, London. Quantities by Mr. F. Thompson, 5, Great James-street, Bedford-row, W.C.:—

Steven & Son	£4,830	Stallard, G.	4,630
Clarke, J. H.....	4,829	Blackman	4,460
Light, W. R., & Co.	4,797	Hall, T. P., Southsea*	4,400

*Accepted.

GREAT MALVERN.—For additions to "Holly Mount," for Mr. Benson Rathbone, J.P. Messrs. Mackmurdo, Hornblower, & Walters, architects, London:—

William Porter	£1,310	Thomas Broad, Malvern* .	£1,225

* Accepted.

Hot Water Work.

William Birbeck, Worcester (accepted)..... £101 0 0

HITCHIN (Herts).—For alterations and additions to mansion and for the erection of stabling, at King's Walden, Hitchin (exclusive of foundations and drainage), for Mr. T. F. Harrison. Messrs. Beeston & Burmester, architects, 30, Lincoln's Inn-fields, W.C. Quantities by Mr. C. Fitzroy Doll:—

	Mansion. £.	New Stabling. £.	Totals. £.	Time. Weeks.
Col's & Son	17,480	6,760	24,240	52
Gillow & Co.....	16,970	5,990	22,960	60
Trollope & Son.....	16.440	6,440	22,880	45
Jones & Son	16,900	5,950	22,850	60
Pattinson & Co.	16,737	6.079	22,816	40
Simpson & Son	16,737	6,000	22,737	65
Green, T. L,.....	15,785	6,265	23,050	70
Bell & Son.....	15,897	6,097	21,994	42
Wm. J. Adcock, Dover*.	14,800	5,700	20,500	65

* Accepted.

LEEDS.—Accepted for the erection of Church schools, Pudsey. Mr. C. S. Nelson, architect, Royal Insurance-buildings, 10, Park-row, Leeds:—

Mason, &c.—Thomas Wood, Pudsey .....
Joiner, &c.—Thomas Haton, Pudsey.....
Plumber, &c.—Joseph Scant, Pudsey .....
Plasterers.—Joseph Laycock & Sons, Stanningley
Slater.—Frederick Thompson, Stanningley ....
Painter.—John Nicholson, Pudsey .....

} Total amount of accepted tenders, £1,680 0 0.

LONDON.—For re-erecting the water-closets of the infants' department of the Necking-r-road School, Bermondsey, at a further distance from the school building, for providing stoneware troughs and automatic flushing tanks, and also for adapting the existing water-closets and urinal for a coal and wood store, for the School Board for London. Mr. T. J. Bailey, Architect:—

John Garrett & Son	£406	F. & H. F. Higgs	£283
J. Derry.....	340	H Mallett, 233, Clapham-road, S.W.*	266
Leeks & Hooker	305		

* Recommended by the Works Committee for acceptance.

LONDON.—For the erection of a school to provide accommodation for 805 children on the site in Mulgrave-place, for the School Board for London. Mr. T. J. Bailey, Architect:—

J. T. Chappell.....	£19,591	Lathey Bros.	£17,080
Holloway Bros.	18,489	E. Lawrance & Sons.....	17,038
J. Mowlem & Co.	18,430	Hart Bros.	17,005
Thomas Boyce	17,769	W. Downs, Hampton-street, Walworth-road, S.E.*	16,822
Holliday & Greenwood ..	17,756		
J. Marsland.....	17,520		
D. Charteris	17 496		

* Recommended by the Works Committee for acceptance.

LONDON.—For the erection of a block of stabling on the south side of Edwardes-square, Kensington, for Mr. John Crowle. Mr. Charles R. Guy Hall, architect, 13, St. Alban's-road, Kensington:—

John Douglas	£1,755	John Barker & Co	£1,273
Stafford Hill.....	1,580	J. H. Hayden	1,257
Leslie & Co.	1,334	Chas. F. Kearley (accepted)	1,112

LONDON.—For rebuilding No. 47, Maddox-street, W., for Messrs. G. & W. Lawrence. Mr. W. A. Williams, architect, 156, Regent-street. W. Quantities by Mr. C. W. Brooks:—

Lowe	£7,745	Gregory & Co.	£7,539
Harris & Wardrop	7,645	E. A. Roome, 112, Clarence-road, Lower Clapton* ..	7,488
Chappell.....	7,549		

* Accepted.

[Burmantofts' estimate of £900 for the whole front in faïence ware accepted.]

LONDON.—For the erection of stables, with dwelling-rooms, at Lansdown-mews, Guilford-street, for Messrs. R. Dolling & Sons. Mr. P. Currey, architect:—

		A.*
Patten	£895 0 0	£40 0 0
Worsley & Co.....	783 0 0	43 15 0
Brown & Harris.....	750 0 0	—
Wells & Son.....	740 0 0	—
Woodrow & Pitcher, 43, Millman-street, W.C.	730 16 0†	25 0 0

* Additional for brickwork in cement. † Accepted.

LONDON.—For alterations, &c., to "Whitwell Arms," Canning Town, for Messrs. Mann, Crossman, & Paulin:—

J. & H. Cocks	£389	J. G. Smith (accepted).....	£301
Inkpen & Son	321	S. Salt	294
G. Barker	318		

LONDON.—For alterations, additions, and repairs to 61, High-road, Kilburn, for Mr James Stewart. Mr. Edward Harnor, architect, 8. John-street, Adelphi:—

Smith	£1,660	Eady	£1,341 18 3
S. J. Dainton (accepted) ..	1,500		

LONDON.—Accepted for the erection of residence and studio in Cadogan-gardens, Chelsea, S W., for Mr. Mortimer Menpes. Messrs. Mackmurdo, Hornblower, & Walters, architects, London:—

H. J. Wright, Chelsea £3,915 0 0

[Exclusive of decorative works.]

LONDON.—For alterations and additions to Messrs. Carter, Paterson, & Co.'s Depot, High-street, Deptford. Mr. Wm. Eve, architect, 10, Union-court, E.C.:—

Harris & Wardrop.....	£493	Salt	£394
Burman & Sons	486	Chafen, 20a, Trundley's-road, Deptford (accepted)	357
Godfrey & Son	454		

LONDON.—For rebuilding the "Sir Isaac Newton" public-house High-street, St. John's Wood, N.W. Mr. Thomas Durrans, architect, 44, Upper Baker-street, N.W.:—

H. C. Clifton	£4,930	T. Stevens.....	£4,596
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Mauktelow & Co.....	4,920		

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LONDON.—Accepted for new front, &c., to the "Moorgate Tavern, Moorgate-street, E.C., for the Brewery Assets Corporation (Limited). Mr. H. I. Newton, architect, 49, Victoria-street, Westminster, S.W.:—

R. Plummer, City £490 0 0

LONDON.—For erecting the Roman Catholic Church of the Sacred Heart, West Battersea (Contract B, superstructure, excepting aisles and tower). Mr. Fredk. A. Walters, architect Quantities by Mr. John B. Lofting, 4, Great Queen-street, Westminster:—

F. & H. F. Higgs.....	£6,900	Thos. Gregory & Co.	£6,187
Turtle & Appleton.....	6,890	Jas. Longley & Co., Crawley*.....	6,175
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LONDON.—For painting and cleaning works at the Casual and Receiving Wards, Bear-yard, Lincoln's Inn-fields, for the Guardians of the Strand Union. Mr. Wm. S. Cross, architect, 18, Outer Temple, Strand, W.C.:—

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RINGWOOD (Hants).—For residence at Ringwood, Hants, for Mr. J. Cogan Conway. Messrs. Lawson & Donkin, architects and surveyors, Bournemouth:—

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SHOTLEY BRIDGE.—For rebuilding a farmhouse at Medomsley Grange Farm, for Mr. Jas. Hunter, Antoni's Hill, N.B. Messrs. John Smith & Son, architects, Rose Cottage, Shotley Bridge:—

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CHESHUNT LOCAL BOARD.

APPOINTMENT OF SURVEYOR AND INSPECTOR OF NUISANCES.

The Local Board for the District of Cheshunt requires the SERVICES of a person to discharge combined duties of the above offices.

The area of the district is 8,430 acres, and the population about 9,600.

The salaries will be as follows:—100*l.* per annum as Surveyor, and 150*l.* as Inspector of Nuisances.

The person appointed must be between 30 and 45 years of age; he will be required to reside within the district, and to devote the whole of his time to the duties of the offices, must not engage in any other business or duties whatever, and must enter into a bond in the sum of 200*l.* He will be required to keep a pony and conveyance for the proper performance of his duties, and to commence the same on the 29th SEPTEMBER, 1892.

As Surveyor, he must be well acquainted with waterworks, drainage, the making and management of roads and footpaths the taking of levels and surveys, the value of labour and materials, the preparation of plans, specifications, and estimates, the construction and erection of buildings, the keeping of all necessary books and accounts, including the payment of wages, and the performance of all other duties of a Surveyor to a Local Authority.

As Inspector of Nuisances, he will be required to carry out the duties prescribed by the Orders of the Local Government Board and the various Sanitary Acts. The appointment will be made subject to the approval of the Local Government Board.

Applications to be made by letter only in applicants' own handwriting, stating present and last employment, accompanied by copies only, which will NOT be returned, of three testimonials of recent date, as to character and competency, not later than TUESDAY, the 7th JUNE, 1892, endorsed "Surveyor," and addressed "The Chairman, Cheshunt Local Board, St. Mary's Hall, Cheshunt."

Canvassing will be deemed a disqualification. Original testimonials must not be sent.

By Order of the Local Board,
A. COLLINGWOOD LEE,
Solicitor, Clerk.

St. Mary's Hall, Cheshunt.
May 19th, 1892.

ROYAL INDIAN ENGINEERING COLLEGE, COOPER'S HILL, ENGLEFIELD GREEN.

WANTED, an INSTRUCTOR in GEOMETRICAL DRAWING and ESTIMATING, and LECTURER in ARCHITECTURE. Salary 450*l.* per annum, with bachelor's quarters in the College for bona-fide residential purposes, with the use of coals, gas, and water.

For further particulars apply to the SECRETARY at the College.

SAINT PANCRAS, LONDON.

APPOINTMENT OF SANITARY INSPECTOR.

The Health Committee of the Saint Pancras Vestry REQUIRE a SANITARY INSPECTOR, aged from twenty-five to forty.

The person appointed will be required to devote his whole time to the duties of his office, and to reside in the parish, and to sign an agreement not to claim superannuation.

The salary will be 120*l.* per annum.

No candidate will be eligible who does not possess the Certificate of the Sanitary Institute or other examining body, and the appointment will be subject to the approval of the Local Government Board, and in accordance with the terms of the Sanitary Officers (London) Order, 1891.

Applications for the foregoing appointment must be in the candidate's own handwriting, and made on forms to be obtained from the undersigned, and be accompanied by copies of not less than three or more than six testimonials of recent date, and sent in on or before the 1st day of JUNE, 1892.

Candidates will be required to attend the Health Committee on the 7th day of JUNE, 1892, at FOUR o'clock in the afternoon.

No travelling or other expenses will be allowed.

Canvassing either personally or otherwise will disqualify candidates.

WILLIAM MALLISON,
Chief Clerk, Health Department.

Vestry Hall,
Pancras-road, N.W.
18th May, 1892.

VESTRY of St. MARY, ISLINGTON.

ROAD FOREMAN.

The Works Committee of this Vestry are prepared to receive APPLICATIONS for the APPOINTMENT of ROAD FOREMAN in one of the divisions of the district.

Candidates must have a practical knowledge of masons' and pavors' works, repairing roads, measuring up works, squaring dimensions, and making estimates, and none but those who have been engaged in a similar capacity need apply.

The person appointed will be required to devote the whole of his time to the duties of the situation, particulars of which can be obtained by application to the Chief Surveyor, Mr. J. PATTEN BARBER, at the Vestry Hall.

Salary to commence at 40*s.* per week, rising by annual increments of 5*s.* per week to a maximum of 50*s.* per week.

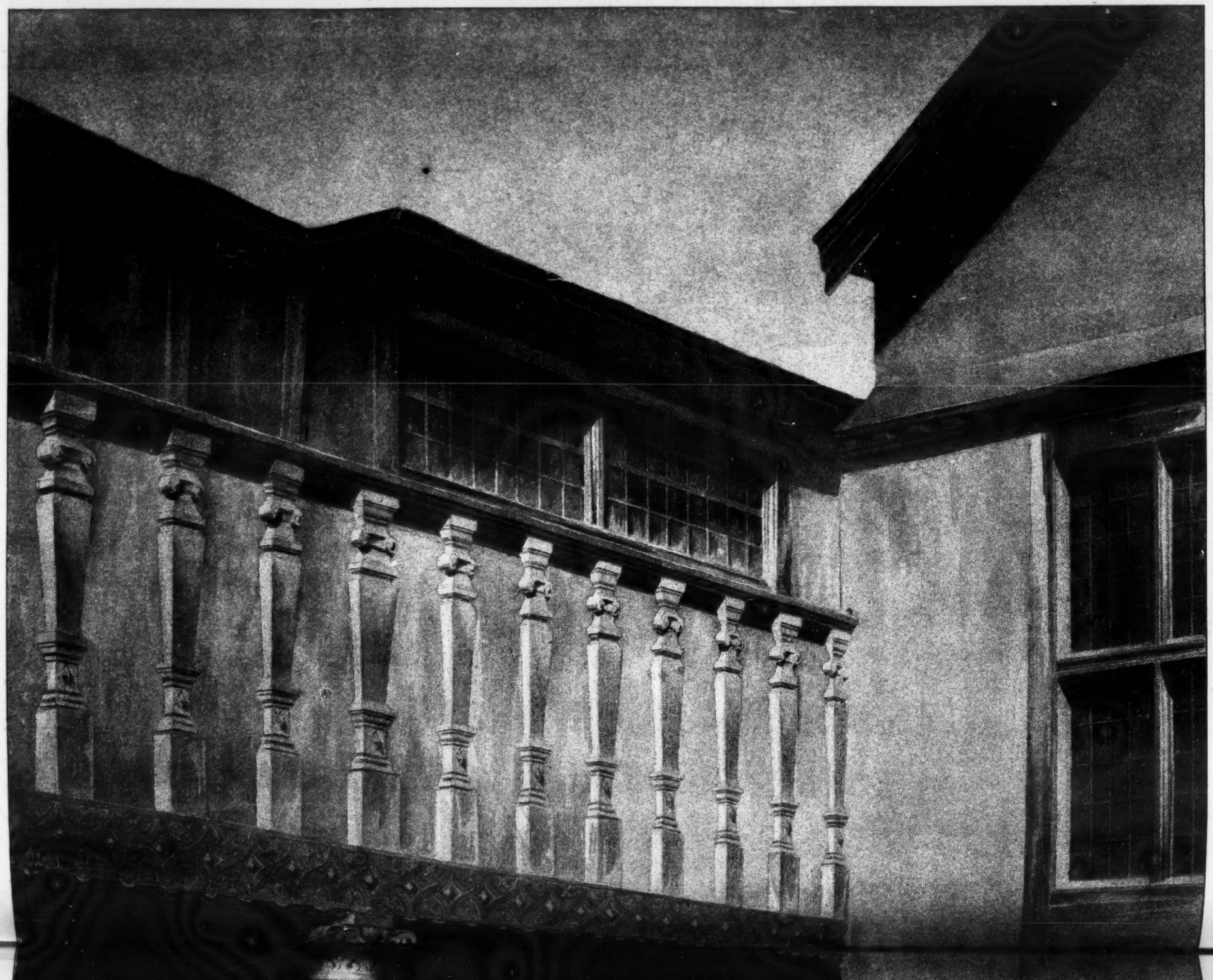
Applications in the handwriting of the candidates, stating age and present employment, and accompanied by not more than three testimonials of recent date, must be delivered to the undersigned, not later than FOUR p.m. on the 9th JUNE next.

WM. F. DEWEY,
Vestry Clerk.

Vestry Hall,
Upper-street, N.
May 25th, 1892.

INK-PHOTO SPRAGUE & Co 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

INTERIOR OF ST. MARY WOOLNOTH, CITY.—From a Water-colour Drawing by Miss A. Fooks.



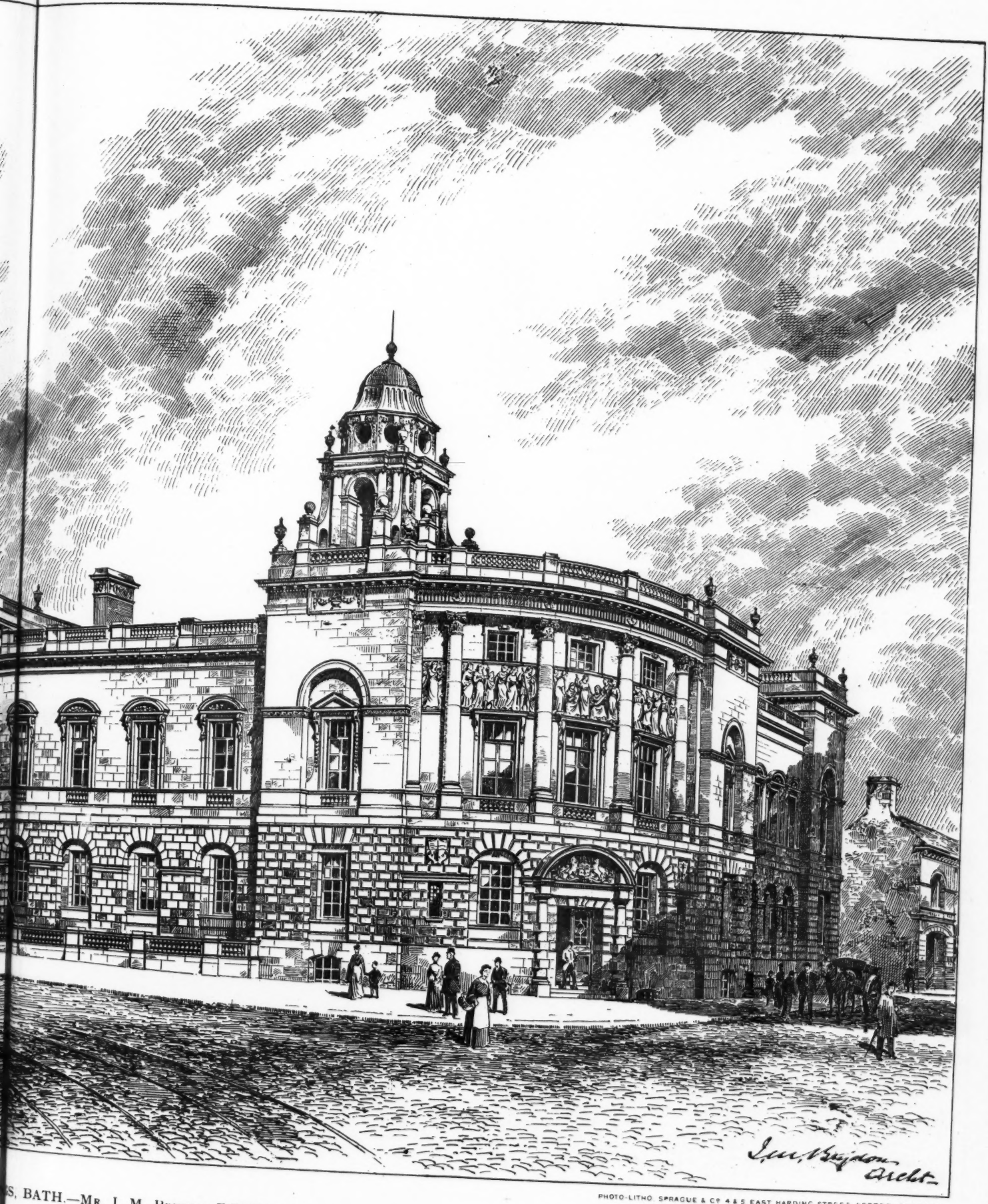
INK-PHOTO. SPRAGUE & Co. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

ILLUSTRATIONS OF OLD CHESTER.—Drawn by Mr. T. P. Ivison.

No. V.—"THE LADY'S BOWER," WATERGATE ROW SOUTH.

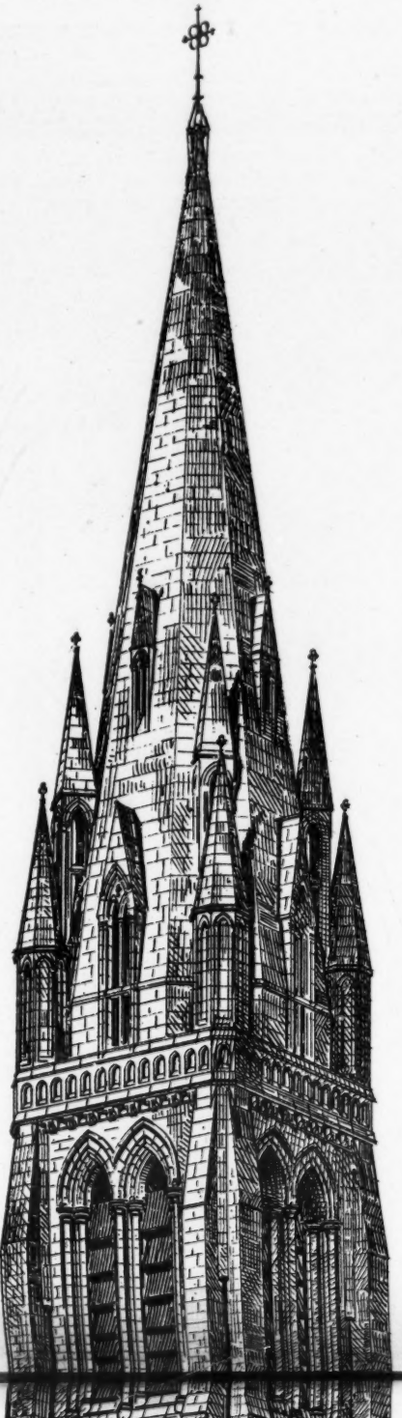
PERSPECTIVE VIEW OF NEW MUNICIPAL BUILDI[illegible]S, BA

Royal Academy Exhibition, 1892.



S, BATH.—Mr. J. M. Brydon, F.R.I.B.A., Architect.

PHOTO-LITHO. SPRAGUE & Co. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.



Design for New Parish Church of Saint Peter Drogheda.

Mr T.L.Watson, F.R.I.B.A Architect

PHOTO-LITHO. SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

Royal Academy Exhibition, 1892.